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ABSTRACT

The magnet schools program in St. Louis supported seven elementary and three secondary level programs. In addition, three pilot programs on the secondary level were established. The programs were evaluated in terms of basic skills achievement and social relations (defined as decreased racial isolation). Statistical analyses of achievement data showed varying but high levels of achievement on the primary level. Elementary magnet school students were shown to achieve at the same level as students in regular school programs. Real differences were not found in comparisons of achievement levels between magnet and regular secondary programs. However, differences were found among individual secondary level magnet programs. Comparisons of pilot and regular school programs showed significantly higher levels of achievement in pilot schools. Social relations data points to differences in opposite directions in black and white students' perceptions of relationships among students and between students and school administrators. Variability of experiences was reflected in teachers' responses to social relations scales, with differences seen between perceptions of black and white teachers. Analysis of enrollment retention rates showed a 50.4% rate for magnet schools with no comparable information from regular programs. Tables and graphs of statistical data are included. (MK)

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ESAA Magnet/Pilot Project

Final Evaluation Report

1978-79

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CHAPTER 1 INTRODUCTION

This report presents results of the St. Louis Public Schools' Magnet School program at the end of its third year of operation. As such, it provides perspective on what has been accomplished to date and what remains to be done. It is hoped that the data presented here will answer some of the major questions concerning the magnet program, as well as provide direction for future efforts.

PROGRAM DESCRIPTION

Since the inception of the magnet school program in St. Louis in the fall of 1976, the St. Louis Public School System has supported, with a combination of local funds and federal funds obtained under the Emergency School Assistance Act, a number of elementary and secondary school programs intended to attract and maintain biracial student bodies by providing special interest and/or high quality instructional programs. Description of the different magnet programs follows. It should be noted here that, throughout the body of this report, magnet schools will be referred to by the abbreviated titles indicated in the parentheses following the program name below. Thus, the Academy of Basic Instruction #1 at the Mallinckrodt School will be referred to as ABI 1, the Action Learning and Career Exploration Center at Madison School will be referred to as ALCE, and so forth.

ELEMENTARY SCHOOLS

The elementary magnets included seven distinct programs offered at eight different schools. The schools included:

(1) Academy of Basic Instruction #1 (ABI 1) Mallinckrodt School

The Academy of Basic Instruction at Mallinckrodt School is a fundamental school providing a strong instructional program in the basic skills (reading, writing, and arithmetic). The focus of the instructional program at the Academy is providing each student with a sequential and organized course of study in each academic discipline. Although the self-contained classroom is prominent in the Academy, individual expertise of the staff are utilized by interchanging teaching responsibilities accordingly. In addition, community resources are utilized to introduce or reinforce concepts taught at the Academy. The school's atmosphere is reflective of the mutual respect among teachers, students, and parents who cooperatively produced a code of conduct and dress code for the school.

(2) Academy of Basic Instruction #2 (ABI #2) Waring school

The Academy of Basic Instruction at Waring School is also a fundamental school stressing instruction in the basic skills in accordance with discipline and self-control. Originally split between the Ford Branch and Field Branch Schools, this program was combined and relocated at the centrally-located Waring School for the beginning of the 1977-78 school year.

(3) Action Learning and Career Exploration Center (ALCE) Madison School

The stated purposes of the Action Learning and Career Exploration Center are (1) to increase student achievement in reading, mathematics, and language, and (2) to expose students to the world of work, while challenging them to explore the world within the range of their abilities. The school emphasizes career awareness in grades Kindergarten through six, and career exploration in grades seven and eight.

The instructional program is implemented by grade level teams who work with students in large groups, small groups, individually, and in independent study situations.

(4) Foreign Language Experience School (FLES) Mullanphy School

The Foreign Language Experience School is designed: (1) to develop within students in grades one through eight an increasing fluency in speaking, reading, and writing a second language, and (2) to familiarize students with the history, customs, and morals of the cultures involved. This was the only magnet program which operated as a school-within-a-school. That is, students in the Foreign Language program attended language classes only part of the day, receiving their basic academic instruction in regular classes along with other Mullanphy students not enrolled in the magnet program.

(5) Individually Guided Education (IGE) Wade School

The purpose of the Individually Guided Education School is to provide students in grades Kindergarten through eight with a program of individualized instruction based upon thorough and accurate diagnosis and appropriate prescriptions. The instructional program is directed by an Instructional Improvement Committee comprised of team leaders, an Instructional Coordinator, and the principal.

(6) Investigative Learning Center (ILC) Stix School

The ILC program provides students with an opportunity to develop an understanding of basic concepts, principles, and theories of science, with special emphasis on the biological sciences, plant and animal ecology and astronomy. Inquiry activities center primarily around the processes of observation, classification, measurement, communication, evaluation and prediction in the sciences. Student class time is structured on an equal basis between field experiences in which community resources are heavily utlized and classroom experiences.

The Investigative Learning Center also provides a program for gifted students within the framework of the school. Students are identified for the gifted program through intelligence tests, standardized achievement tests, and teacher recommendation. The gifted program strives to challenge the full use of a child's abilities. It encourages creativity, initiative, and excellence.

(7) Computer Managed Learning (PLAN) Ames School

The overall purpose of the Computer Managed Individualized Learning School is to provide an instructional program in language arts, mathematics, social studies and science to students in grades one through eight accommodating the diverse learning styles, needs and interests of the students. The Westinghouse Learning Corporation's instructional program, PLAN* (Program for Learning in Accordance with Needs), provides objective based learning packages to students and a computer monitoring system for language arts, mathematics, social studies, and science. Each student receives an individualized daily print-out which indicates which objectives have been mastered and which skills need to be learned or reinforced.

(8) Visual and Performing Arts Center (VPAC) Shaw School

The educational program at VPAC provides for one-half day instruction in academic areas and one-half day intensive training in an arts specialty. The program takes a biracial approach in classroom and extra-curricular activities to encourage interaction with, and understanding of, varying cultural, social and ethnic backgrounds. Teachers and staff are trained in diagnosis and prescription of weaknesses in the basic skill areas. In addition, specialized staff are utilized in exploring the arts. This program was relocated from St. Wenceslaus to Shaw School between the 1976-77 and the 1977-78 school years.

SECONDARY SCHOOLS

The magnet program also included three high schools for students in grades 9 through 12. They provided basic secondary curricula with course offerings in English, mathematics, social studies, foreign language and the sciences. In addition, as described below, each school offered an intensified study program in a specialized field of interest.

(9) Business and Office High School (BOHS)

The main thrust of this magnet school is to provide a comprehensive instructional and training program for high school students interested in business and office careers. Two unique features of this program include a work-study senior year and the fact that all courses, not just specialized business courses, have a business orientation (i.e., basic math is business math, art is commercial art). In addition, communication skills, cooperative human relations skills and biracial interaction are stressed.

Teachers and staff are trained in business competencies, discipline models and human relations. Field trips to businesses, industries, and

local colleges, as well as visits from resource people help students clarify career plans. In addition, community businesses provide apprenticships for senior students. This program is the only one of the magnets which did not start up in the fall of 1976, being implemented initially in the second year of the project (1977-78).

(10) Academy of Mathematics and Science (AMSHS)

The main thrust of this magnet school is to provide specialized opportunities for students who are interested in science and mathematics. Advanced course offerings, extended periods, a computer and math center, field experiences, and apprenticeships are unique features which allow in-depth instruction, independent practice and study, and career orientation. In addition to meeting the state and local graduation requirements, students have opportunities for career orientation.

(11) Visual and Performing Arts High School (VPAHS)

The Visual and Performing Arts High School offers opportunities for students with talent and interest in the arts to receive individualized attention, to work with professional artists and performers and to benefit from the centralized resources provided in their school. The purpose of the high school is to provide students with an integrated curriculum of basic skills, academic studies, and studio arts.

PILOT PROGRAMS

In addition to the magnet schools, ESAA provided funds to support elementary schools located geographically in urban areas of high minority concentration. The objective of these programs was to improve the quality of education available to students attending these schools.

(1) College Preparatory Program

A special college preparatory program was established at two racially isolated high schools (Sumner and Northwest) in 1976 where staff were already capable of giving remedial college preparatory work. This program was designed to assist educationally disadvantaged students in grades 9-12 to realize their full potential in order to have the opportunity to successfully enter and finish college.

(2) Reading with Understanding

This program was established for fourth through eighth graders at two elementary sites, Scullin and Jefferson Schools. The major purpose of this program was to teach students specific techniques to improve their reading skills by using materials from the content areas of social studies and mathematics.

(3) Verbal Skills Center

Located in Williams School, this program utilized materials developed by New Century. The program was designed for students who experienced difficulty in reading and writing or students with above average ability who could

benefit from a specialized challenging program.

SPECIAL PROGRAMS

To provide further support to the overall goals of the program, several special projects and support components serving all the schools were established. These are described below.

Law and Consumer Education

The purpose of the Law and Consumer Education Program was to provide instruction to some 1800 fifth through eighth grade magnet school students in five areas: consumer problems, legislative process, juvenile problems and the law, court systems and the police. The program involved a coordinator working directly with teachers in their classrooms, and providing materials and technical assistance to them as needed. The program utilized the expertise of law and consumer resource personnel and field trips in conjunction with a number of community agencies.

Ethnic Heritage

The Ethnic Heritage Program was offered in all Magnet Schools. The program sought to strengthen the students' sense of ethnic identity and to develop awareness of the multi-cultural, multi-racial, and multi-ethnic makeup of American society. The program utilized media presentations, special curriculum materials and guest visits to encourage the development of racial/ethnic understanding among students as well as teachers.

Staff Development

This component was designed to provide a comprehensive staff development program for teachers, administrators, instructional aides, supportive staff and parents. The program was initiated in an effort to reduce the effects of minority group isolation and to provide the training necessary for these groups to function effectively with students of different races, different socio-economic backgrounds and various groups. Inservice opportunities were provided to promote skills in effective communication and listening, understanding of conflict and its resolution, and development of empathetic relationships in cross-racial contexts.

Community Involvement

The primary objective of this component was to increase development and interaction among the ESAA Advisory Committee, the St. Louis business, civic and educational community, parents, and the St. Louis Board of Education. Open Houses, a Magnet/Pilot Community paper, workshops and field trips were some of the activities carried out to promote broad community involvement.

PROGRAM ENROLLMENT

Enrollment and racial breakdown figures for each year of the project are reported in Table 1.1. As can be seen from the figures reported in the "Total" columns, the program has seen an increase in the number of students served, from 3210 (2167 Magnet, 1043 Pilot) in 1976-1977, to 5221

TABLE 1.1 MAGNET AND PILOT ENROLLMENT AND MINORITY PROPORTIONS, 1976-79

Magnet Schools	Black Students			White Students			TOTAL*			PERCENT MINORITY		
	1976-77	1977-78	1978-79	1976-77	1977-78	1978-79	1976-77	1977-78	1978-79	1976-77	1977-78	1978-7
ABI #1	133	189	203	126	119	120	260	309	323	51	61	63
ABI #2	113	299	317	6	38	20	119	344	341	95	87	93
ALCE	123	144	156	86	143	81	209	287	237	59	50	66
FLES	57	152	167	47	104	77	108	259	245	53	59	68
IGE	164	165	232	152	211	147	317	377	381	52	44	61
ILC	179	262	294	125	114	123	306	377	418	58	69	70
PLAN	178	349	315	213	186	145	393	538	464	45	65	68
VPAC	86	192	223	96	169	145	183	363	371	47	53	60
Elementary Total	1033	1752	1907	851	1084	858	1895	2854	2780	55	61	69
BOHS	--	80	93	--	40	48	--	120	141	--	67	66
AMS	89	197	215	46	90	98	135	287	314	66	69	68
VAPHS	87	193	266	50	110	138	137	303	404	64	64	66
Secondary Total	176	470	574	96	240	284	272	710	859	65	66	67
Magnet Total	1209	2222	2481	947	1324	1142	2167	3564	3639	56	62	68
Pilot Schools												
Jefferson	234	235	257	0	0	0	234	235	257	100	100	100
Scullin	231	240	250	0	0	0	231	240	250	100	100	100
William	98	122	115	0	0	0	98	122	115	100	100	100
Elementary Total	563	597	622	0	0	0	563	597	622	100	100	100
Northwest	240	480	480	0	0	0	240	480	480	100	100	100
Sumner	240	480	480	0	0	0	240	480	480	100	100	100
Secondary Total	480	960	960	0	0	0	480	960	960	100	100	100
Pilot Total	1043	1557	1582	0	0	0	1043	1557	1582	100	100	100

*Total also includes students with ethnic classification other than black or white.

(3639 Magnet, 1582 Pilot) in 1978-79. Most of this increase occurred in the Magnet schools, in which enrollment increased by nearly 1500 students from the first to the third year, but enrollment in the Pilot programs did increase by more than 500 students. Referring specifically to the enrollment figures for Magnet Schools, there are several important observations that can be made:

.Enrollment of black students steadily increased from Year 1 to Year 2, and from Year 2 to Year 3. This increase in black student enrollment was further observed in all magnet schools, elementary and secondary, with the single exception of PLAN, which had a net loss of 34 black students between the second and the third year.

.Enrollment patterns of white students have differed between elementary and secondary schools. While white enrollment in the high schools has steadily increased from the first to the third year, enrollment of white students in the elementary schools has been less stable, in several cases (ALCE, FLES, IGE, PLAN, VPAC) showing a net loss of 20 or more students from Year 2 to Year 3.

.The increased enrollment of black students, coupled with the lack of a corresponding increase in white student enrollment, has resulted in an increased minority percentage over the three year span. Most of this increase occurred within the elementary schools, which went from 55% minority in 1976-77 to 61% in 1977-78, and 69% in 1978-79.

These observations, taken together, suggest some cause for concern about retention of white students in the elementary schools. Although enrollments have increased over the three-year period, and the schools have (with the exception of ABI #2) been able to maintain minority percentages which are within program guidelines, there is an indication here that white students are leaving the elementary programs at a rate which will eventually make it exceedingly difficult to maintain magnet schools which are noticeably biracial. Further analysis and discussion of retention of students is presented in Chapter 3 of this report.

EVALUATION DESCRIPTION

The 1978-79 Magnet/Pilot Program evaluation focused on two areas of inquiry: basic skills achievement and social relations (reduction of racial isolation).

Basic Skills Achievement

The basic question addressed is whether or not students attending magnet and pilot schools achieve as well as, or better than, comparable stu-

ents in non-magnet/pilot schools and whether some magnet/pilot schools are more successful than others at maintaining or improving achievement of their students. The specific procedures used are described in detail in Chapter 2, which presents results of the elementary school achievement analysis.

The Test of Academic Progress (TAP) was given to students in grades ten through twelve in the Magnet/Pilot Programs and to samples of students in control schools.

SOCIAL RELATIONS

Your Classmates

A sociometric instrument, "Your Classmates," was administered to all magnet students in grades one through eight in the spring of 1979. These data and data from previous years' administration of this instrument formed the bases for a study of cross-racial social preferences among magnet school students at this level.

Teacher Student Relationships Scale (TSRS)

A student (Form A) and teacher (Form B) version of the Teacher Student Relationships Scale was administered to teachers and students in all magnet schools. At the elementary level, only the 7th and 8th graders were administered the instrument. The student form elicited information about students' experiences in and feelings about the programs they were in. Among other issues, the survey items probed cross-racial interaction among students and between students and teachers. Similarly, the teacher form solicited information about cross-racial interaction among students, and between students and teachers, and among the school staff.

CHAPTER 2. ELEMENTARY SCHOOL ACHIEVEMENT DATA

This section of the report presents the results of analyses of basic skills achievement data for magnet school students in grades 1 through 6. All results are reported in terms of scores obtained on the Iowa Tests of Basic Skills (ITBS), with different levels used according to the levels of students tested. First and second grade students were tested with the ITBS Primary Battery (ITBS-P) during the spring of each of the first three years of the magnet school program (i.e., May, 1977, May, 1978, and June, 1979). Students in the upper grades (3-8) alternately took Form 5 and Form 6 of the standard ITBS battery in successive years.

Because of the differing nature of the two test batteries and the variation of previous test data available for students, the results will be reported in three sections, as described below.

I. First and Second Grades

At this level, the analysis is of a cross-sectional nature. That is, comparisons will be made of the scores of students in each of the two grades across the three years of the project. This analysis will enable comparisons among the different components and years for students in the same grades. However, the analysis does suffer a limitation in that all the data were collected at the end of the year and there is no measure available to indicate what level of skills the students may have had when they first entered school. Thus, observed differences between or among components and years could be due as much or more to differences that existed prior to the program as to any influence of the program itself.

II. Sixth, Seventh, and Eighth Grades With Comparison Students

This analysis is actually the core analysis for elementary student achievement data in the magnet schools. The analysis is based on a longitudinal study of achievement across the three-year period from Spring, 1976, through Spring, 1979. The comparisons are between students who were enrolled in magnet schools during the period and a cohort of students matched to the magnet group on the basis of sex, race, and previous (i.e., May, 1976) achievement. Thus, there were two basic groups who initially achieved at the same level, one group enrolling and continuing in the magnet schools, the other group remaining in their (non-magnet) home

schools over the same interval. The central question of the analysis may be stated as "after allowing for initial levels of achievement, do students who attended the magnet schools achieve any differently from otherwise comparable students who were enrolled in regular programs in the St. Louis system?"

III. Comparison Among Schools

A third set of data consists of Achievement Evaluation Profiles for each of the magnet schools over the first three years of the project. These figures are based on comparisons of actual student achievement in a school with expected achievement based on knowledge of previous year's achievement, I.Q., sex, and an indicator of socioeconomic status. The expected, or "predicted" achievement is derived from statistical models based on analysis of system-wide data collected in previous years. Positive effects of the program, if they exist, would be indicated by actual achievement which is higher than expected achievement.

RESULTS

I. First and Second Grade Achievement

Average ITES-P achievement scores for magnet school students for the spring 1977, 1978, and 1979 administrations in first and second grade are presented in Tables 1 and 2, respectively. With a few exceptions, the scores are fairly consistent from year to year within any given school. There has been a slight decline at the Investigative Learning Center for both grades, though first grade students still scored substantially above national norms and second graders were, on the average, at grade level. Without knowledge of these students' original readiness or entry skills, however, it is not possible to determine whether these year to year changes are due to the instructional program or to changes in entry skills of the school population.

There has also been a change at the Academy of Basic Instruction #2 at Waring School. At the second grade level students tended to score much higher in the most recent testing than in the first two years. This same pattern holds for second grade students at the Wade IGE but, as was stated above, it is not possible with the data at hand to determine whether the changes are due to the program or simply to varying ability levels of the different student populations represented.

The most salient observation that can be made about the data here is

TABLE 1. First Grade ITBS Scores for Magnet Schools

SCHOOL	VOCAB.			WORD ANALYSIS			READING			SPELLING			MATH CONCEPTS			MATH PROBLEMS			MATH TOTAL			NUMBER TESTED		
	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3
ABI #1	2.3	2.3	2.6	2.0	2.0	1.9	2.5	2.8	2.1	2.6	2.1	2.1	2.1	2.1	2.2	2.0	2.5	2.3	2.0	2.5	2.3	19	24	25
ABI #2	1.6	1.8	1.9	1.6	1.8	1.6	1.8	2.0	2.2	1.9	2.2	1.9	1.6	1.9	2.0	1.9	2.0	1.9	1.7	2.0	1.9	27	13	33
ALCE *	1.9			2.2			2.4			3.0			2.7			2.2			2.5			27		
IGE	2.0	2.2	1.8	1.9	1.7	2.0	1.9	2.3	1.9	1.9	3.2	1.7	1.8	2.1	2.3	1.9	1.3	2.1	1.9	1.7	2.2	41	26	44
ILC	2.8	2.5	2.4	2.5	2.8	2.4	3.2	3.5	2.8	2.0	3.5	2.4	2.5	2.5	2.2	2.6	2.4	2.0	2.6	2.4	2.1	39	29	49
PLAN	1.6	1.5	1.4	1.5	1.5	1.3	1.4	1.6	1.7	1.6	1.5	1.3	1.6	1.8	1.7	1.3	1.7	1.6	1.4	1.8	1.6	48	46	43

* Scores for Year2 and Year3 unavailable

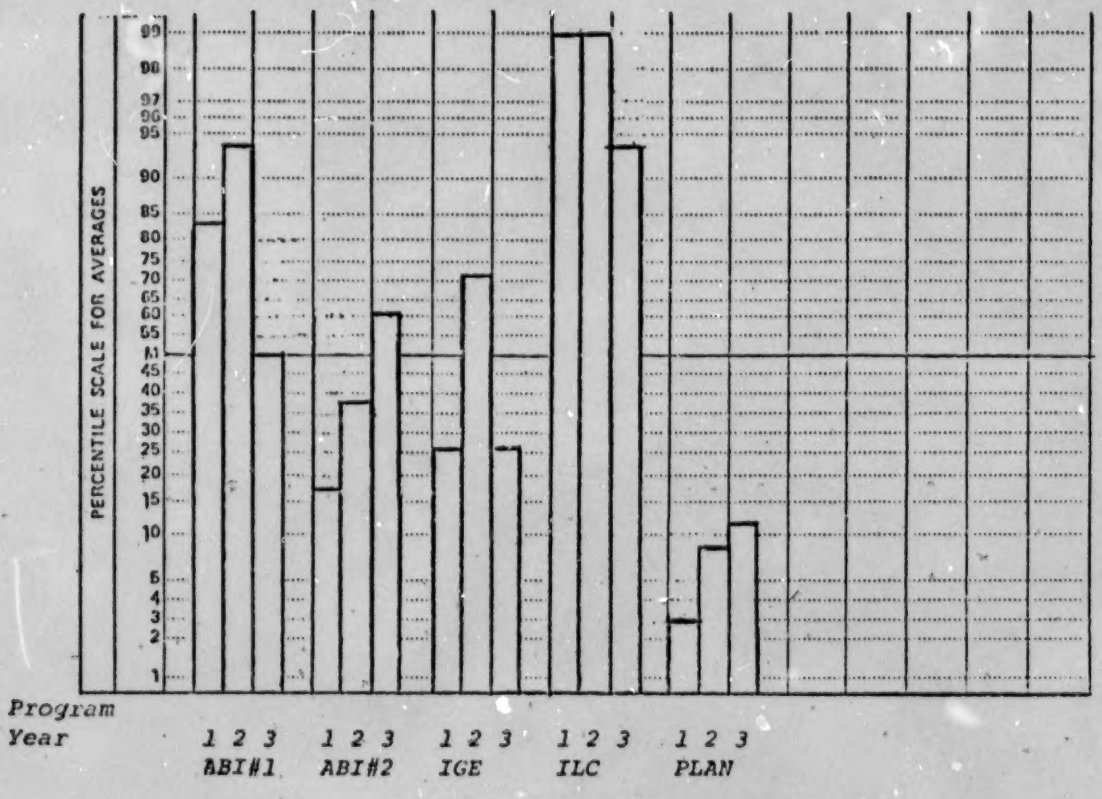
TABLE 2. Second Grade ITBS Scores for Magnet Schools

SCHOOL	VOCAB.			WORD ANALYSIS			READING			SPELLING			MATH CONCEPTS			MATH PROBLEMS			MATH TOTAL			NUMBER TESTED		
	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3	Yr1	Yr2	Yr3
ABI #1	2.8	3.1	2.9	2.6	2.8	3.0	2.6	3.3	3.2	2.7	3.3	2.8	2.5	3.1	3.0	2.5	2.5	2.7	2.6	2.8	2.8	27	31	27
ABI #2	2.4	2.6	3.3	2.7	2.7	3.0	2.8	2.8	3.2	2.7	2.9	3.2	2.2	2.8	3.0	2.3	2.4	2.7	2.2	2.6	2.9	18	51	38
ALCE	2.7	2.8	2.7	2.7	2.6	2.2	3.1	2.5	2.7	2.9	2.6	3.1	3.0	2.9	3.4	3.0	3.0	3.4	3.0	3.0	3.4	15	22	26
IGE	2.6	3.1	3.4	2.7	2.8	3.1	2.6	2.7	3.5	2.3	2.7	3.2	3.2	2.9	3.4	2.6	2.5	3.3	2.9	2.7	3.3	35	41	33
ILC	3.1	3.5	2.8	2.8	3.6	2.7	3.1	3.2	2.9	3.1	2.8	2.7	3.2	3.7	2.8	2.8	3.2	3.0	3.0	3.5	2.9	22	35	44
PLAN	2.3	2.3	2.1	2.1	2.0	1.7	2.2	2.1	2.1	2.2	2.4	2.1	2.2	2.1	2.2	2.4	2.2	2.0	2.3	2.2	2.1	57	63	40

FIGURE 1

SCHOOL PERCENTILE RANKS - READING

First Grade



Second Grade

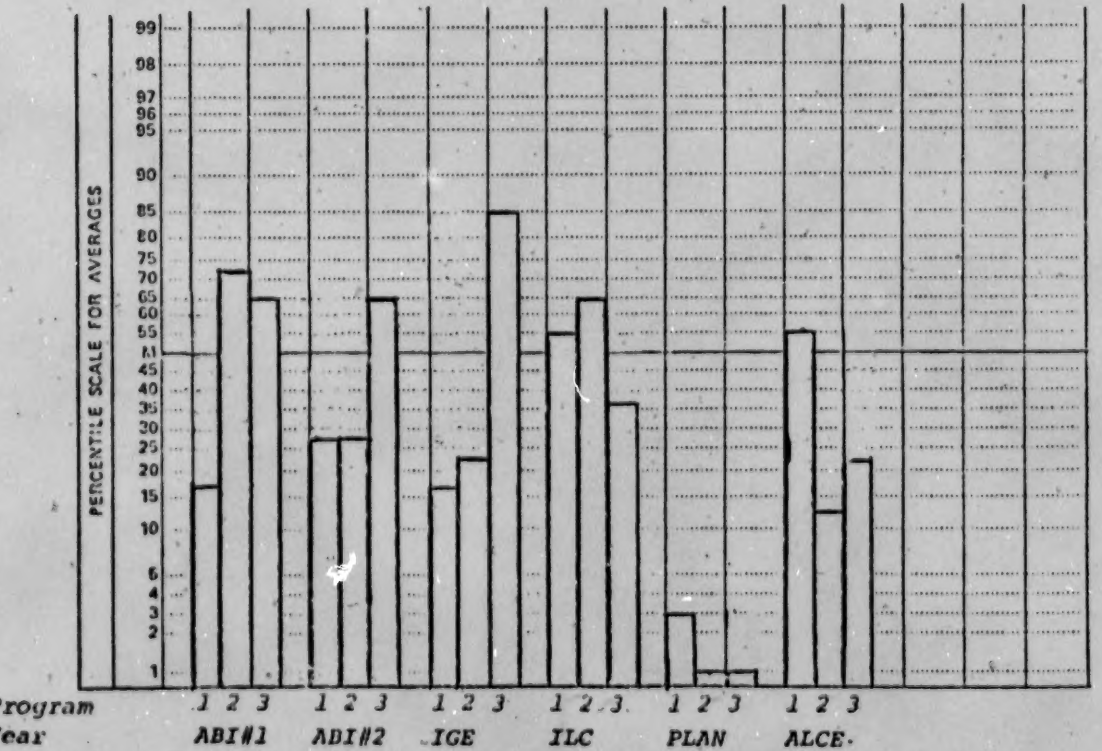
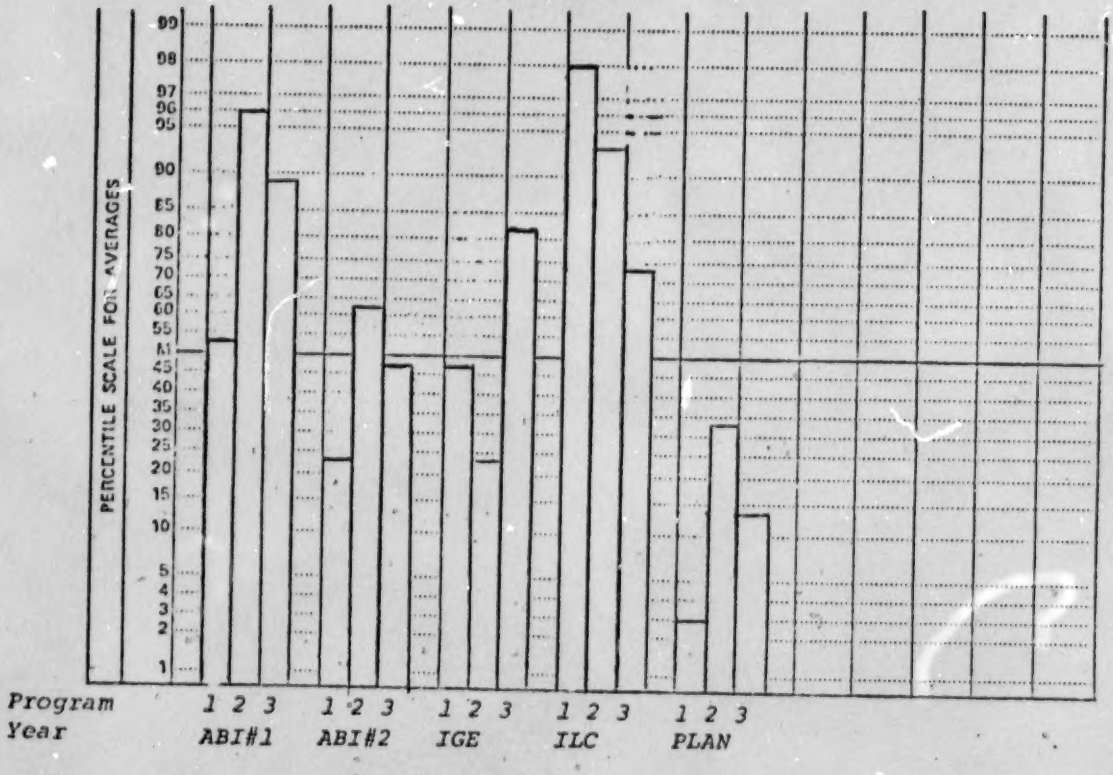


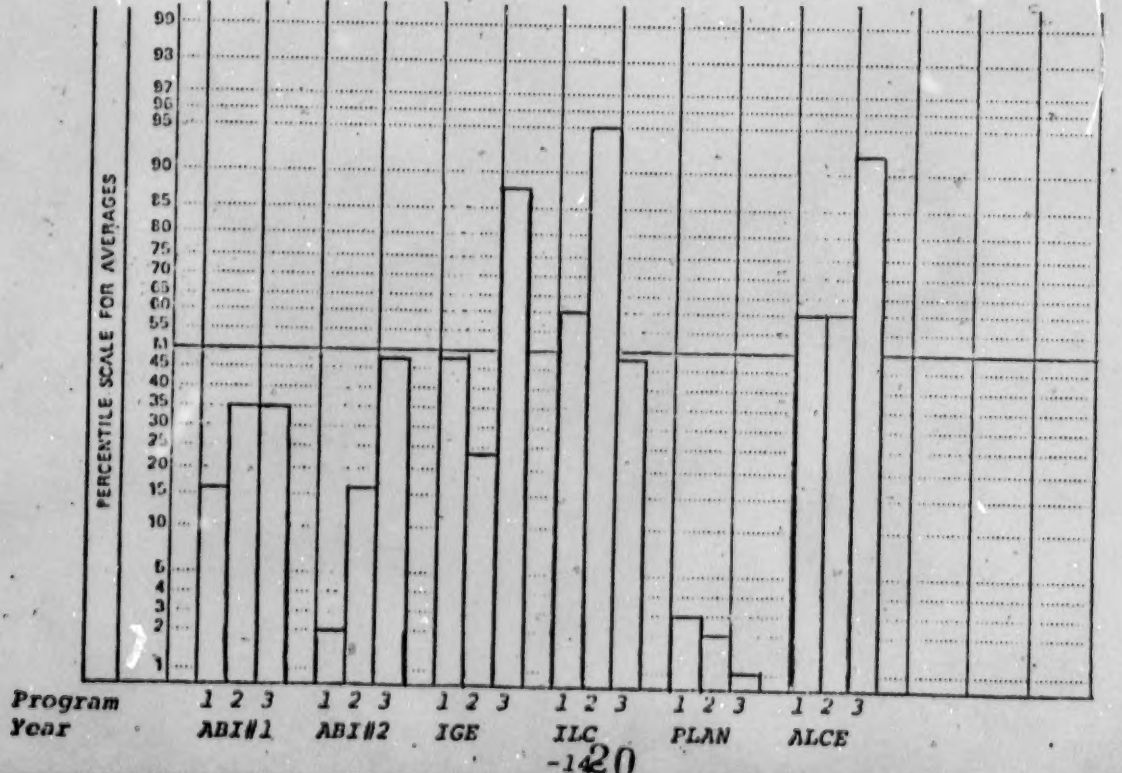
FIGURE 2

SCHOOL PERCENTILE RANKS - MATH

First Grade



Second Grade



that there are large variations in achievement among the magnet schools which are noticeable even with the youngest students. This is demonstrated graphically in Figures 1 and 2, which show the school averages converted to national percentiles for schools for two key ITBS subscales (Reading and Mathematics). The differences among the schools (especially the difference between students in the PLAN program at Ames School and the others) are readily apparent in these figures. It should be noted that these percentiles are based on school averages rather than individual scores and should not be interpreted as indicating that all students at Ames perform at corresponding low percentiles. It does mean, though, that as a school, Ames ranked very low in average achievement of its students.

Among the other schools, differences are not, as a rule, clear-cut, but the Investigative Learning Center at Stix has ranked well above the national norm, with the exception of second grade last year, and the Academy of Basic Instruction #1 at Mallinckrodt has ranked consistently above the national average for schools. The Academy at Waring and the Wade IGE school tend to rank very close to each other, though there appears to be something of an unusually high achieving group of students at Wade in the second grade last year. Comparing the year 3, second grade scores at Wade with the year 2 first grade (essentially the same group of students one year later) indicates consistently high scores for this group across years. It will be of interest to follow this group into third grade during the fourth program year to see if these relatively high levels are maintained.

In general, the Primary level achievement data for the magnet schools reflects varying, but fairly high, levels of achievement. With the exception of Ames, all the schools had some areas in which their average scores ranked above the national norm. However, because of the lack of data on these students' performance or potential prior to their entry into the magnet schools, it is not possible at this level to separate possible program effects from possible pre-existing differences. Further follow-up of these students as they continue in the program should help to clarify the situation somewhat, but it is doubtful, at this level, that a definitive answer can be reached.

II. Sixth, Seventh, and Eighth Grades with Comparison Students

Of the analyses performed on magnet elementary school data, this is

both the most intricate and the most definitive. It involves tracking cohorts of magnet students over a three-year period and comparing the changes in their achievement with those of cohorts of comparable students over the same period who were enrolled continuously in other (i.e., "regular") schools in the St. Louis system. As such, it controls for many factors which may contribute to achievement differences, such as age, sex, and previous achievement, leaving as the main difference between the two groups that one group attended magnet schools and one did not. The analysis can thus provide an answer to the very basic question of whether students who have been in the magnet schools achieve any differently than otherwise comparable students who remained in regular programs.

The two samples of students employed in this analysis are restricted somewhat by the need to maintain complete data over the full four testing periods (Spring, 1976, Spring, 1977, Spring, 1978 and Spring, 1979). The study was limited to students who were in sixth, seventh, and eighth grades during the 1978-79 school year. These were the only grades for which complete ITBS data would be available for the Spring, 1976 testing period. Fifth graders during the 78-79 school year would have been second graders in the spring of 1976, and only those in Title I schools would have ITBS scores available. Last year's sixth graders would have been in third grade during the 75-76 school, and would have participated in system-wide ITBS testing then.

There may be some question about the representativeness of the sample studied here to the population of magnet school students as a whole. Comparing the numbers of magnet school students selected here to the potential number, i.e., students in magnet schools who were two grades lower during the 76-77 school year, we have retained 44%, 40%, and 36%, respectively, of the 78-79 eighth, seventh, and sixth grade classes. Much of this was due to an approximately 50% rate of retention of students in the program for the full three years. A separate study of retention is reported in the next section of this report. Other factors which may have caused students to be excluded from the analysis are: missing tests from one of the three (77, 78, 79) end-of-year testing periods, no test score for 1976, as in the case of students who enrolled in the magnet program from private or parochial schools or who moved into the city from another public school

system, or transferred from one magnet school to another. One school (Mullanphy) had no magnet program at the fourth, fifth, and sixth grade level during year 1, and another (VPAC) had no fourth grade program that year.

All of these factors operated in one degree or another to limit the number of students whose test data could be analyzed over the full three year period. However, for the number for whom complete data were available, the analysis provides as definitive a comparison as can be made without involving a strictly experimental approach (e.g., assignment of students to schools on a random basis). Moreover, the analysis performed is one that has a high likelihood of finding a difference between magnet and comparison group students if one exists. The analysis of covariance techniques used allows for control of numerous sources of possible error.

The longitudinal data (mean ITBS scores for Magnet and Comparison students for each of the last four Spring test administrations) are summarized in Table 3 and presented graphically in Figures 3-5. Scores are reported separately for black and white students to address the question of whether there may be differential effects. Results of the statistical analysis indicate that there were essentially no effects due to participation in the magnet program within the group and the period studied. In one case (8th grade Reading) there may have been an effect, but the effect was so slight that we can place little confidence in its reliability. Inspection of the corresponding part of Table 3 indicates that the difference is due to improved achievement of black magnet school students in relation to black comparison students. Since the difference is so slight, however, it remains more defensible to conclude that there has been no general effect on achievement than it would be to conclude the opposite.

There were, in addition, some instances of differences by race (6th grade Reading, 7th grade Reading and Math) indicating relatively smaller achievement gains for black students than for white students, irrespective of attendance at a magnet or a control school. This difference, though, may be largely a consequence of measurement scale properties of grade equivalent scores. That is, grade equivalent scores have greater dispersion, or "spread", at higher than at lower grade levels, and one

TABLE 3

Longitudinal ITBS Data for Magnet and Comparison Students

		Reading				Language				Math				
8th		76	77	78	79	76	77	78	79	76	77	78	79	N
Wh	M	5.37	6.57	7.18	8.34	5.74	6.14	7.27	7.94	5.80	6.52	7.38	8.54	33
	C	5.60	6.66	7.44	8.56	6.11	6.90	7.83	8.75	6.10	6.80	7.88	8.92	51
Bl	M	4.83	5.94	6.64	7.88	5.75	6.27	7.50	8.43	5.23	5.88	6.96	8.33	78
	C	5.00	5.99	6.68	7.68	6.00	6.85	7.81	8.56	5.44	6.18	7.07	8.25	75
		Reading				Language				Math				
7th		76	77	78	79	76	77	78	79	76	77	78	79	N
Wh	M	4.85	5.60	6.57	7.92	5.13	5.80	6.88	7.70	4.89	5.84	6.98	7.79	36
	C	4.88	5.64	6.50	7.75	5.40	6.06	7.09	8.01	5.14	6.04	6.73	8.03	37
Bl	M	4.25	4.85	6.07	6.79	4.45	5.14	6.24	7.07	4.21	5.11	6.20	6.74	54
	C	4.09	4.80	5.74	6.69	4.85	5.55	6.69	7.55	4.34	5.16	6.13	7.14	63
		Reading				Language				Math				
6th		76	77	78	79	76	77	78	79	76	77	78	79	
Wh	M	3.67	4.33	5.49	6.49	4.17	4.69	5.68	6.97	3.59	4.32	5.54	6.68	22
	C	3.56	4.48	5.80	6.58	4.13	5.04	5.91	6.66	3.77	4.08	5.34	6.24	30
Bl	M	3.32	3.65	4.80	5.88	3.91	4.04	5.63	6.36	3.43	4.08	5.34	6.24	41
	C	3.23	3.98	4.99	5.78	4.00	4.73	5.66	6.56	3.36	4.28	5.22	6.11	50

Figure 3 - Longitudinal ITBS Reading Trends for Magnet and Comparison Students

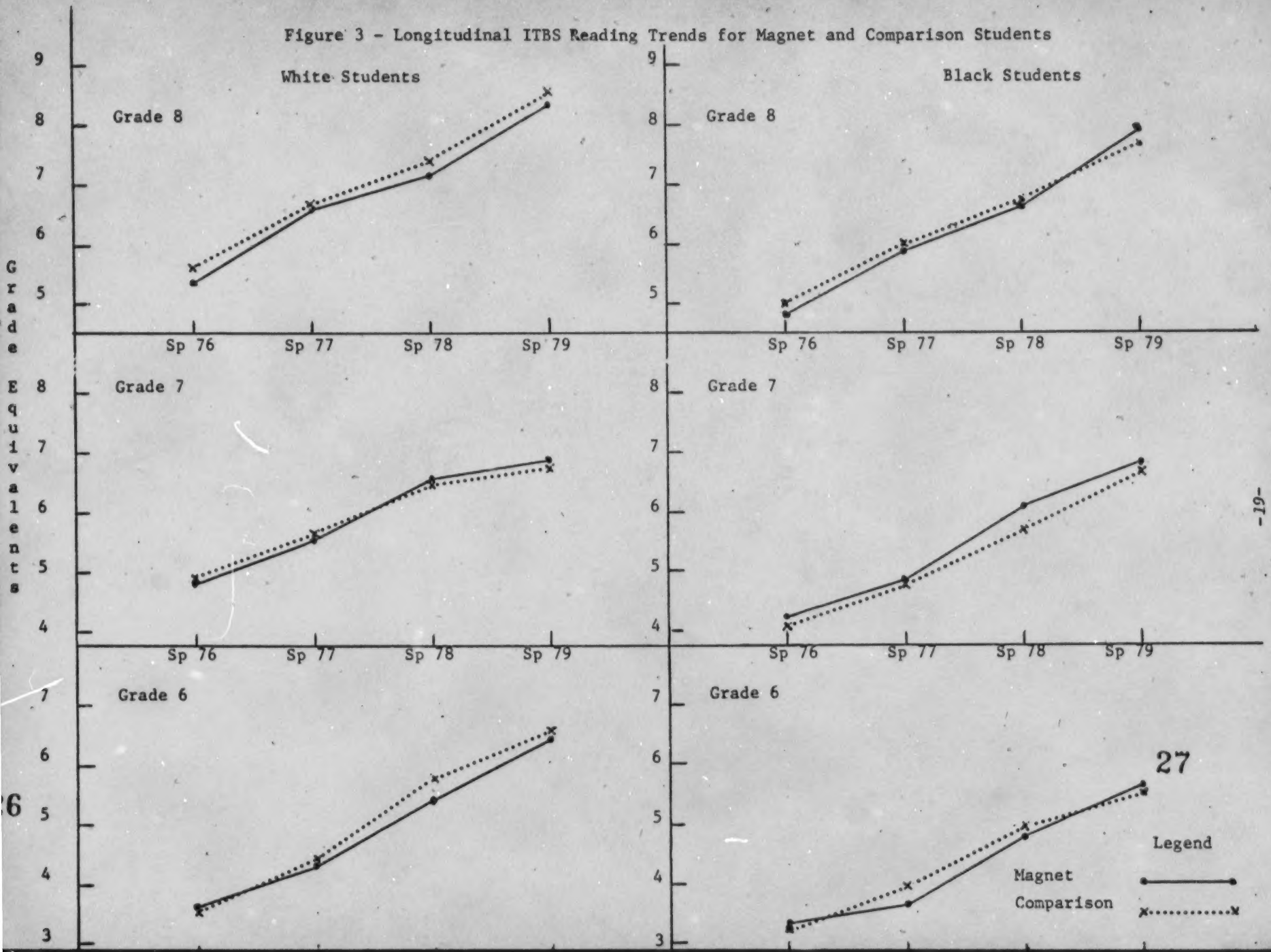


Figure 4 - Longitudinal ITBS Language Trends for Magnet and Comparison Students

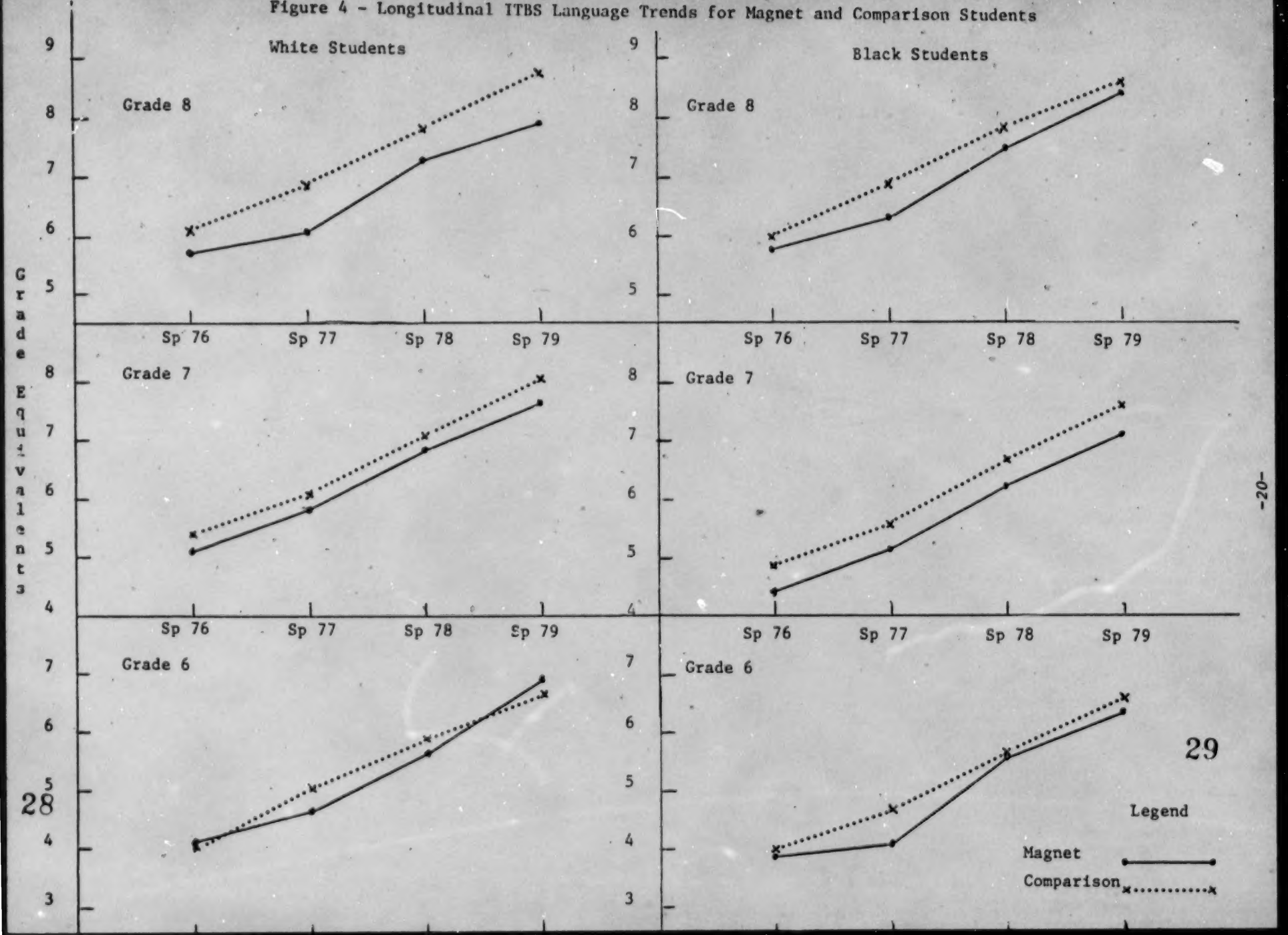
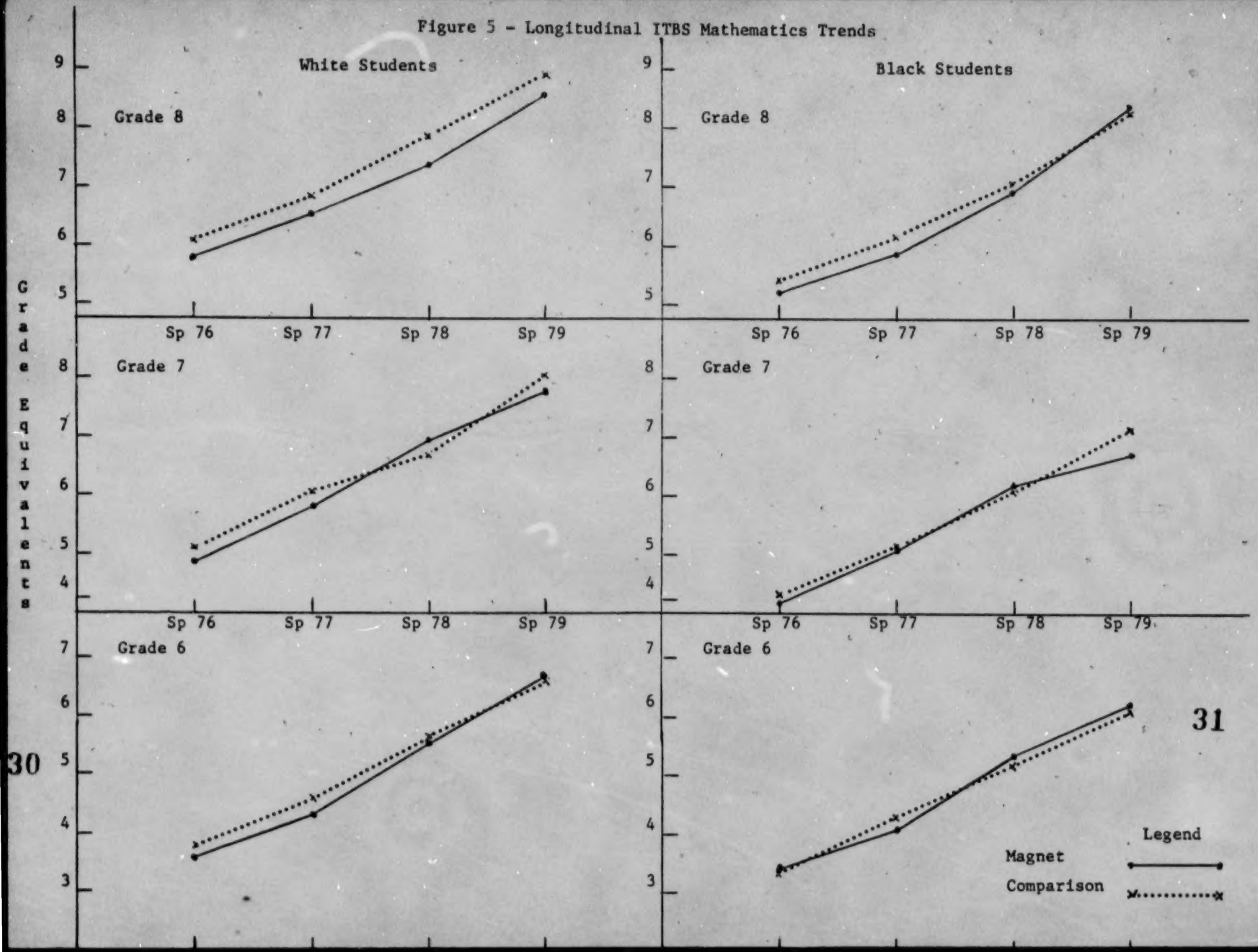


Figure 5 - Longitudinal ITBS Mathematics Trends



may appear to fall further below or above average with progressive grade levels, while actually maintaining the same position in relation to the norm group. An analysis based on scores which have the same dispersion across age levels (such as the Normal Curve Equivalent scores now used in ESEA, Title I reporting) might well not reveal the same differences.

At any rate, the most cogent point here is that the data do not provide evidence of an appreciable effect of magnet schools on student achievement, either positively or negatively. Though there may be differences from one individual school to another, in general, magnet school students achieve about the same as they would in a regular school program.

III. Comparisons Among Schools

One unanswered question pertains to the possibility that some of the individual magnet schools may have had some effect on student achievement. Since the overall effect was essentially zero, as indicated in the previous section, this implies that, if some did have a positive effect, others must have had a negative effect, in order for the two to balance out. To investigate this question, analysis was made from Achievement Evaluation Profiles from the Magnet Elementary schools for each of the past three years. To the extent that actual achievement exceeds expected achievement, there may be an indication of some program impact. The limitation of this analysis is that the achievement projections cover only one year at a time, allowing no analysis of long-term effects. Their advantage is that they provide information on a larger number of students than in the previous analysis, and some rough comparisons among schools are possible.

These data are summarized in Tables 4 (Reading) and 5 (Math). Though there are many numbers reported there, some things are fairly easy to discern. First, at least during the first two years of the program, students at VPAC consistently achieved at less than expected levels. They seemed to do somewhat better in Reading during the most recent year, but it should be noted that the relative losses of the first two years would lead to lower projected achievement, thus underestimating the student potential. Data for Stix Investigative Learning Center students provide

TABLE 4

READING ACHIEVEMENT EVALUATION PROFILE SUMMARY

		YEAR 1 (1976-77)				YEAR 2 (1977-78)				YEAR 3 (1978-79)				AVE IQ		
SCHOOL	GRADE	N	EXP ACH	ACT ACH	DIFF	N	EXP ACH	ACT ACH	DIFF	N	EXP ACH	ACT ACH	DIFF	Year 1	Year 2	Ye
VPAC	8	70	7.59	7.50	-.09	137	7.98	6.79	-1.18	102	8.13	8.45	+.31	97.0	99.2	10
	7	38	7.50	7.10	-.40	92	7.53	7.26	-.26	93	7.23	7.26	+.03	104.7	101.2	9
	6	36	6.29	6.27	-.02	87	6.28	5.83	-.44	58	6.66	6.31	-.35	100.0	98.3	10
	5	35	5.54	5.26	-.28	48	5.24	4.88	-.35	62	5.11	4.96	-.14	99.8	100.7	9
	4	--	--	--	--	--	--	--	--	51	4.52	4.56	+.04	--	--	9
PLAN	8	39	6.83	7.08	+.24	50	7.26	7.13	-.13	53	6.94	7.54	+.60	90.0	91.4	9
	7	44	6.41	6.29	-.12	73	6.70	6.42	-.27	57	6.83	6.89	+.05	91.5	91.2	9
	6	52	5.53	6.22	+.69	71	5.65	5.89	+.23	64	5.57	5.38	-.19	90.0	88.3	8
	5	46	4.41	4.18	-.23	79	4.49	4.34	-.14	57	5.24	4.58	-.66	83.5	88.7	9
	4	45	3.94	3.36	-.57	56	2.61	3.54	+.93	42	3.49	3.39	-.09	87.9	--	8
AICE	8	41	--	--	--	49	7.30	8.00	+.69	30	7.64	7.97	+.33	93.6	92.0	9
	7	33	6.13	6.58	+.44	44	6.76	6.60	-.15	37	7.43	7.21	-.22	88.7	94.0	9
	6	38	5.66	5.51	-.14	37	6.14	6.60	+.45	25	6.40	6.14	-.25	91.9	96.6	9
	5	30	5.10	4.97	-.12	28	5.09	5.64	+.54	26	4.44	5.62	+1.18	95.8	93.8	8
	4	18	4.51	4.09	-.42	27	3.23	3.26	+.02	19	4.20	4.69	+.49	99.3	82.8	9
ABI #1	8	48	8.13	8.23	+.10	51	8.06	8.08	+.01	48	7.68	7.77	+.08	100.5	99.9	9
	7	36	7.07	7.04	-.02	42	7.12	7.06	-.05	43	7.11	6.81	-.30	98.4	97.1	9
	6	31	6.29	6.21	-.08	41	6.13	6.00	-.13	55	5.76	6.01	+.24	97.3	97.7	9
	5	23	5.20	5.02	-.18	48	4.81	5.00	+.19	28	5.09	5.01	-.07	99.0	93.1	9
	4	37	4.40	4.03	-.36	30	3.82	4.50	+.67	29	4.40	4.41	+.01	96.2	90.5	9
ILC	8	32	7.55	7.87	+.32	34	8.02	8.58	+.56	48	7.70	8.52	+.82	96.4	96.7	9
	7	35	7.31	7.41	+.09	47	6.87	6.79	-.07	47	7.90	7.84	-.06	101.1	93.9	10
	6	42	6.09	6.19	+.10	66	6.80	6.65	-.15	49	6.64	6.68	+.04	96.4	102.9	10
	5	50	5.68	5.46	-.21	44	5.42	5.70	+.27	53	4.94	5.63	+.69	104.5	100.4	8
	4	39	4.60	4.52	-.08	48	3.07	4.55	+1.47	51	4.25	4.58	+.33	99.9	95.3	9
IGE	8	24	7.36	7.17	-.18	51	7.76	7.66	-.10	47	7.49	7.79	+.30	94.3	95.1	
	7	38	6.71	7.08	+.36	47	6.68	6.64	-.04	35	7.30	6.65	-.64	93.3	90.7	
	6	41	5.74	5.97	+.22	39	5.91	6.27	.36	44	5.90	5.84	-.05	90.7	94.2	9
	5	29	5.05	5.01	-.03	43	4.49	4.84	+.34	47	--	4.73	--	98.2	91.2	-
	4	43	3.65	3.64	-.01	52	--	4.46	--	50	3.94	4.04	+.10	92.5	84.0	6
ABI #2	8	11	6.80	6.73	-.07	39	7.43	7.17	-.25	26	7.91	8.09	+.17	88.8	95.4	9
	7	21	6.11	6.03	-.08	28	7.42	7.08	-.33	49	6.68	6.59	-.08	86.3	99.2	9
	6	12	5.33	6.07	+.73	44	5.80	5.69	-.11	48	6.06	6.24	+.18	91.6	93.9	9
	5	12	4.07	4.05	-.02	37	4.99	4.96	-.02	45	4.78	5.37	+.59	80.0	97.7	9
	4	11	4.36	3.69	-.67	41	--	4.51	--	30	4.28	4.75	+.46	91.7	--	9
Total Group	8	265	7.48	7.50	+.02	450	7.67	7.40	-.26	394	7.62	8.03	+.40	95.7	95.8	9
	7	268	6.71	6.79	.07	412	7.01	6.82	-.18	396	7.16	7.04	-.11	94.5	95.6	9
	6	252	5.87	6.07	+.19	408	6.13	6.11	-.01	375	6.06	6.03	-.02	94.0	96.0	9
	5	225	5.10	4.94	-.15	362	4.91	4.93	+.01	338	4.95	5.09	+.14	95.5	94.8	9
	4	193	4.31	3.88	-.43	284	3.54	4.17	+.63	305	4.07	4.32	+.24	94.8	88.4	9

TABLE 5

MATH ACHIEVEMENT EVALUATION PROFILE SUMMARY

76-79

		YEAR 1 (1976-77)				YEAR 2 (1977-78)				Year 3 (1978-79)			
SCHOOL	GRADE	N	EXP ACH	ACT ACH	DIFF	N	EXP ACH	ACH ACH	DIFF	N	EXP ACH	ACT ACH	DIFF
VPAC	8	70	8.02	7.75	-.27	137	8.06	7.23	-.82	102	8.35	8.28	-.07
	7	38	7.71	7.30	-.40	92	7.38	7.26	-.11	93	7.19	7.01	-.18
	6	36	6.60	6.11	-.48	87	6.34	6.03	-.31	58	6.64	5.92	-.72
	5	35	5.56	5.07	-.49	48	5.51	5.11	-.40	62	5.36	5.09	-.26
	4	--	--	--	--	--	--	--	--	51	4.56	4.46	-.10
PLAN	8	39	7.40	7.34	-.05	50	7.36	7.32	-.04	53	7.44	8.08	+.63
	7	44	6.90	6.27	-.62	73	6.67	6.52	-.15	57	6.99	6.77	-.21
	6	52	5.97	5.79	-.17	71	5.71	6.25	+.54	64	5.81	5.40	-.21
	5	46	4.75	4.69	-.05	79	4.88	4.48	-.40	57	5.55	5.18	-.36
	4	45	4.10	3.56	-.53	56	3.28	3.77	+.49	42	3.80	3.96	+.16
ALCE	8	41	7.49	7.23	-.26	49	7.66	8.05	+.38	30	8.27	8.34	+.07
	7	33	6.67	6.67	.00	44	6.80	6.85	+.04	37	7.47	7.08	-.39
	6	38	6.06	5.69	-.36	37	6.49	6.71	+.21	25	6.83	5.98	-.85
	5	30	5.37	5.99	+.61	28	5.28	6.07	+.79	26	5.03	6.16	+1.13
	4	18	4.62	4.15	-.46	27	3.63	4.08	+.44	19	4.46	4.62	+.16
ABI #1	8	48	8.64	8.13	-.51	51	8.30	8.28	-.02	48	8.35	8.43	+.08
	7	36	7.40	7.39	-.00	42	7.30	7.55	+.25	43	7.15	7.04	-.11
	6	31	6.69	6.61	-.07	41	6.28	6.28	.00	55	6.16	6.79	+.62
	5	23	5.45	5.29	-.15	48	5.18	5.64	+.45	28	5.41	5.53	+.12
	4	37	4.48	4.30	-.17	30	4.06	4.42	+.35	29	4.35	4.86	+.50
ILC	8	32	8.03	7.37	-.65	34	8.02	8.47	+.45	48	8.20	8.59	+.39
	7	35	7.80	7.27	-.52	47	7.05	7.05	.00	47	8.07	7.79	-.27
	6	42	6.48	6.21	-.27	66	6.69	6.90	+.20	49	6.71	7.12	+.41
	5	50	5.80	5.28	-.51	44	5.53	5.67	+.14	53	5.19	5.68	+.48
	4	39	4.64	4.40	-.24	48	3.68	4.27	+.58	51	4.32	4.65	+.33
IGE	8	24	7.72	8.12	+.40	51	7.87	7.77	-.09	47	7.86	7.61	-.25
	7	38	7.28	6.80	-.48	47	6.67	6.62	-.04	35	6.81	6.56	-.24
	6	41	6.18	5.58	-.60	39	5.93	5.92	-.01	44	6.04	5.69	-.35
	5	29	5.25	5.00	-.24	43	4.86	5.07	+.21	47	--	5.14	--
	4	43	3.70	3.94	+.24	52	--	4.58	--	50	4.02	4.15	+.13
ABI #2	8	11	7.02	7.79	+.76	39	7.90	8.12	+.22	26	8.42	8.29	-.13
	7	21	6.81	6.79	-.01	28	7.68	7.28	-.40	49	6.84	6.80	-.03
	6	12	5.79	7.06	+1.26	44	6.00	6.09	+.08	48	6.41	6.44	+.03
	5	12	4.59	4.93	+.34	37	5.34	5.46	+.12	45	5.15	5.27	+.11
	4	11	4.37	4.29	-.07	41	--	4.67	--	30	4.47	4.98	+.51
Total Group	8	265	7.90	7.67	-.23	450	7.87	7.71	-.15	394	8.09	8.21	+.12
	7	268	7.20	6.88	-.31	412	7.04	7.00	-.04	396	7.17	6.98	-.19
	6	252	6.28	6.02	-.26	408	6.20	6.31	+.10	375	6.27	6.13	-.13
	5	225	5.31	5.19	-.12	362	5.24	5.21	-.02	338	5.31	5.36	+.04
	4	193	4.40	4.06	-.33	284	3.97	4.30	+.33	305	4.19	4.49	+.30

a good comparison, since their average I.Q. scores and expected achievement levels are reasonably comparable to those at VPAC. In contrast to VPAC, the Stix comparisons more often than not indicate greater than expected levels of achievement. Thus, if the ILC program has affected achievement positively, then the VPAC program has affected it negatively. The comparisons, in fact, provide more reason for concern about achievement at VPAC than at the Ames PLAN school, even though achievement at Ames is lower than it is at VPAC.

Among the other schools, the patterns are not consistent enough to give a clear indication one way or another. Students at Madison school the past two years tended to achieve a little higher than expected in Reading, and students at Waring did the same during the third year. But, in general, there seems to be no discernible pattern of effects on achievement, with the exception of the two schools discussed above.

CONCLUSIONS

What one concludes on the basis of these data with respect to achievement of magnet school students depends in part on the level of examination. At the very general level, considering magnet students as a whole, there is no discernible effect, with the possible exception of 8th graders in Reading. At the school level, there is some indication that one (ILC) may have had a positive effect, while another (VPAC) may have had a negative effect. These conclusions are, of course, based on data obtained from older students, most of who had been in school for several years before the initiation of the magnet program. Though effects of the program on students who started magnet school as first graders may never be known definitively, some indications should be provided in future years.

At least one implication is clear. There needs to be more attention placed at VPAC on the maintenance of basic skills at levels commensurate with the students' previous achievement levels and academic aptitude. Though there may be some debate about whether this program should be expected to improve achievement, it has to be of some concern that the evidence indicates that the program has caused the students to achieve at lower levels than they would have in a more traditional program. It seems to be not so much a case of the experiences in the arts provided at VPAC being a valuable supplement to the academic program as that the arts may be replacing academic studies. Though some efforts at this school have been redirected to the academic program, the achievement levels at VPAC remain a source of concern.

A final note concerns the status of PLAN. Even though the analyses reported here do not indicate that student achievement at this school has been affected negatively, there remains serious concern about the level of implementation of the PLAN program. Perhaps the most telling piece of evidence about this program is that, as was reported to us in interviews conducted with staff and students last spring, PLAN was dropped for approximately four weeks prior to spring achievement testing, in favor of intensive academic review and drill periods. This suggests the possibility that there may have been some negative effect on achievement which was masked by the results of the review and drill, assuming that the review and drill periods themselves were effective. It also suggests a lack of confidence in the PLAN program on the part of the teachers participating in it. We do have evidence from earlier studies conducted with the PLAN program at Ames, that students who are more productive (in terms of Teaching-Learning Units completed) experience greater achievement gains than comparable students who are less productive, so it is reasonable to expect this program to affect achievement in measurable ways. That it has not had a positive effect is, almost certainly, due to continuing and severe implementation problems that seriously need to be resolved.

CHAPTER 3. STUDENT ENROLLMENT RETENTION ANALYSIS

One of the major goals of the magnet school program is to provide high quality educational experiences within a harmoniously integrated school setting. The program is designed to "attract" students to participate in a focused curriculum through voluntary enrollment. The continued existence of the program is, in large part, contingent upon this "attraction factor." Equally important, however, is the institution's ability to maintain this attraction over time, i.e., the retention factor. Most educators agree that the continuity of instruction is important to the educational process and to the individual student. Thus, student retention is important to the program goals and to student goals. The local magnet school administration made provisions in the policy guidelines to facilitate student retention in the program. Students enrolled in the magnet school program during an academic year are eligible to return to the same magnet school the following academic year without making application. Unless the student opts to transfer to another school or the racial composition of the school system changes significantly, magnet school students, once accepted, are "reserved" a permanent space in that particular school. Those students who do not wish to return to the program are reassigned to a non-magnet school within the school system. In some cases students who withdraw from the magnet school program do not enroll in the regular public school program.

This voluntary enrollment concept is not new in desegregation efforts. It is important, however, to know the proportion of students who elect to return to the program after having been involved. The evaluators designed a follow-up study of individual students within schools to determine the retention rates of individual schools within the program and of the program as a whole.

The student enrollment analysis was designed to address two major questions:

1. What proportion of the students enrolled in the program during Year 1 were enrolled in the program Year 3?
2. Was there a larger proportion of either ethnic group remaining in the program?

Data Analysis Procedure

The St. Louis Public Schools' Student Roster (SLPSSR) for 1976-1977 (May 3, 1977) - Year 1 was compared to that same data file (SLPSSR) for 1978-1979 - Year 3 (June 15, 1979) to identify the students enrolled both academic years. From this information it was possible to determine what proportion of these students originally enrolled in the program during the 1976-77 school year were still enrolled at the end of the third (1978-79) year. This proportion thus serves as a retention index, i.e., the percentage of students who started the program and who were retained in the program for three years.

There are two underlying assumptions inherent in the analysis procedure. The analysis was applied at the school level by grade and student. The evaluators assumed a linear educational progression for each student. That is, we assumed that students enrolled in the Year 1 that were classified as fourth graders were enrolled Year 3 classified as sixth graders. The retention index computed assumes that students enrolled both Year 1 and Year 3 were also enrolled Year 2 at the same school. Although there is a possibility that some students may have left the program Year 2 and returned Year 3, such incidences would be rare. The relevant implication of this index applies to the continuity of instruction for student participants.

Because of the longitudinal comparison over three academic years, the students selected for the analysis had to have been eligible to participate in the magnet program at least three years. All students in grades 4, 5, and 6 from each elementary magnet school site in the 1976-77 academic year were tracked to the 1978-79 academic year in the 6th, 7th, and 8th grades, respectively. Subsequently, ethnic group retention comparisons were made to determine whether the degree of retention was significantly different for black or white students.

The analysis and discussion of the data will be presented using the students' most current status, i.e., 6th, 7th, and 8th grades within the school.

Results

Table 3.1 presents the retention rates by school in descending order. The retention rate of the total magnet school program is also presented.

Table 3.1 *RETENTION ANALYSIS BY SCHOOL*

SCHOOL	ORIGINAL STUDENTS 1976-1977	RETAINED 1978-1979	RETENTION RATE
VPAC	74	44	59.5
IGE	121	71	58.7
Academy #1	95	55	57.9
Academy #2	38	19	50.0
ILC	128	58	45.3
PLAN	157	71	45.2
ALCE	95	39	41.1
Magnet Program	708	357	50.4

It is important to note that VPAC did not include a 4th grade magnet program at that site in 1976-77. The data for VPAC includes two grades over the three-year period, whereas all other schools listed include three grades.

The retention rate of Academy #3 (50.0) is most comparable to that of the overall magnet program (50.4). VPAC, IGE, and Academy #1 have slightly higher retention rates than the overall program. ILC, PLAN, and ALCE have slightly lower retention rates than the total program. A retention rate of 50% for the magnet program is, in the opinion of the evaluators, less than favorable. This finding indicates that only half of the students who were attracted to the program in grades 4, 5, and 6 elected to remain in the program.

In order to determine whether retention rates differ for black or white students, the analysis was carried a step further. The original students enrolled in the magnet program in grades 4, 5 and 6 in 1976-77 were identified by ethnic group and tracked to the 6th, 7th and 8th grades in 1978-79.

Table 3.2 presents the original ethnic proportions, the retained ethnic proportions, and the retention rates for each ethnic group by school, grade and the total program as well. In addition, a statistical test was performed (chi-square analysis) to determine the retention relationship between ethnic groups at each level, i.e., by grade, school, and program.

The ethnic retention analysis indicates that a larger proportion of

Table 3.2 RETENTION ANALYSIS BY GRADE AND ETHNIC GROUP

School	GRADE	ENROLLED 1976-77 B	W	T	RETAINED 1978-79 B	W	T	RETENTION RATE B	W	T
IGE	6	23	20	43	14	10	24	60.9	50.0	55.8
	7	13	19	32	12	5	17	92.3*	26.3	53.1
	8	26	20	46	18	12	30	69.2	60.0	65.2
								71.0*	45.8	58.7
ILC	6	22	16	38	11	5	16	60.0	31.3	42.1
	7	29	22	51	10	8	18	34.5	36.4	35.3
	8	28	11	39	23	1	24	82.1*	9.1	61.5
								55.7*	28.6	45.3
ACAD. #1	6	22	15	37	14	8	22	63.6	53.3	59.5
	7	15	9	24	11	5	16	73.3	55.6	66.7
	8	18	16	34	13	4	17	72.2*	25.0	50.0
								69.1*	42.5	57.9
PLAN	6	29	21	50	14	8	22	48.3	38.1	44.0
	7	26	27	53	11	10	21	42.3	37.0	39.6
	8	28	26	54	19	9	28	67.9*	34.6	51.9
								53.0*	36.5	45.2
VPAC	6	No 4th gr in '76-'77								
	7	18	18	36	11	10	21	61.1	55.6	58.3
	8	18	20	38	10	13	23	55.6	65.0	60.5
								58.3	60.5	59.5
ALCE	6	10	8	18	4	3	7	40.0	37.5	38.9
	7	19	17	36	10	7	17	52.6	41.2	47.2
	8	23	18	41	9	6	15	39.1	33.3	36.6
								44.2	37.2	41.1
TOTAL MAGNET PROGRAM	6	106	80	186	57	34	91	53.7	42.5	48.9
	7	120	112	232	65	45	110	54.2*	40.2	47.4
	8	141	111	252	92	45	137	65.2*	40.5	54.4
		367	303	670	214	124	338	58.3*	40.9	50.4

*Each value which carries an asterisk indicates a significant difference between ethnic groups' retention rates.

*black students was retained (58.3) in the program than white students (40.9).**

VPAC, which had the highest student retention rate in the previous analysis (59.5) and ALCE, which had the lowest retention rate (41.1) are the only schools which show no significant differences between ethnic group retention. Black students and white students were retained in comparable proportions at these sites. At each of the other four sites, the retention rate was significantly higher for black students.

It is interesting to note that in the four schools where significant retention differences occurred by race, in each case the difference was primarily accounted for at one grade level only. In ILC, Academy #1, and PLAN differences in retention by race were significantly higher for black 8th graders while retention rates at the other two grade levels were not significantly different. At IGE this same phenomenon was observed for 7th graders where a significantly higher proportion of black students was retained, yet no significant differences occurred among 6th or 8th graders.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

VPAC, IGE, and Academy #1 retained a higher than average proportion of the students who originally enrolled in the magnet program. The high retention rates at IGE and Academy #1 can be attributed to the large proportion of black students and the comparatively small proportion of white students remaining in the program at the seventh and eighth grade levels, respectively. Actually, retention of black students was much above average at these two schools, while the retention of white students was at or slightly above average. ILC and PLAN also have a similar relationship of ethnic retention although the overall retention rates at these sites are lower than the rate for the magnet program. The 50.4% retention rate for the magnet program is not favorable for a program designed to "attract" students because, as the data reveal, attrition is high. There has been no retention analysis which provides a system-wide retention rate. Although knowledge of system-wide retention may modify the perspective of the magnet retention rate, (i.e., magnet retention may be higher than or comparable to that of the school system) the more cogent concern is the reason(s) for magnet student withdrawals from the program.

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*Academy #3 was omitted from this analysis because in 1976-77 there were no white students identified at the Field Branch and Ford Branch sites at the grade levels which were included in this analysis.

In order to obtain information which can indicate means of increasing magnet school student retention, the evaluators recommend the following action plan:

1) *ESAA Evaluators should conduct a focused study which includes the following components:*

   a. *The magnet school retention study should be expanded to include the 1976-1977 magnet students in grades 1 through 3 and grades 9 and 10 (grades 3 through 5 and 11 and 12 in 1978-1979) to determine the total student retention rate for each school and the overall program.*

   b. *From each of the four schools where significant ethnic retention differences were indicated (ILC, Academy #1, IGE and PLAN), fifteen students should be randomly selected (from the population of 1976-1977 students that have withdrawn) to participate in structured interviews designed to determine their reason(s) for withdrawal.*

   c. *The parents of the 1976-1977 magnet school students who withdrew from the program should be surveyed, via questionnaire, to ascertain their level of satisfaction with the magnet program, their comparative views of the magnet and regular school program, and the reason(s) for their child's withdrawal.*

   d. *ESAA Evaluators, in conjunction with Area IV Administrators, should establish procedures whereby any student withdrawing from the magnet school program would participate in an exit interview in order to complete the formal withdrawal process. The interview should be designed to determine the student's reason(s) for withdrawal.*

CHAPTER 4 SECONDARY SCHOOL STUDENT ACHIEVEMENT

One of the unique features of the magnet school program is the specialized curriculum offerings of each school. The school's curriculum is designed to "attract" students with varying interests to participate in a formal and focused program of development in that area. Secondary magnet schools attempt to attract students of (1) an analytic and scientific persuasion, i.e., Academy of Mathematics and Science, (2) artistic interests, i.e., Visual and Performing Arts, and (3) business and clerical ambitions, i.e., Business and Office High. The instructional staffs at the magnet schools have a dual commitment to the specialized area and to the basic skills areas. In that there are no academic entry requirements, there are a wide range of abilities in each of the magnet schools.

In order to assess student achievement in the academic areas, the Test of Academic Progress (TAP) was administered to secondary school students in the magnet, pilot and comparison schools. The test was administered in early June (1979) to tenth through twelfth grade students in the magnet and pilot schools, and to tenth and eleventh grade students in the comparison schools.*

The comparison secondary schools are the McKinley and Roosevelt high schools. These schools were selected as comparison schools on the basis of the racial composition of each. Of the regular secondary schools in the St. Louis system, the racial composition of these schools more closely approximate a racial "balance" than any other in the system. For the purpose of achievement comparisons on the TAP, students in the comparison schools were randomly selected from the general school population by grade level to complete the TAP tests. Their group scores, by grade level, were then compared to the grade level scores for magnet students.

In this chapter of the report, the achievement of secondary school magnet students will be described for the 1978-1979 academic year compared to the locally established comparison schools and to the state norm by subtest and composite score. Student achievement will also be compared

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*At the time of TAP test administration, many of the twelfth grade students in the comparison schools had completed their graduation requirements and were no longer attending classes. Therefore, no achievement data were collected on that group.

between the pilot and comparison groups. In addition, a longitudinal comparison of student achievement will be made within and between each magnet school to determine (a) if there was any change in student achievement as measured by the TAP test, and, if so (b) the direction of that change.

The TAP test consists of five subtest areas which include: social studies, composition, science, reading and math. In addition to the five subtest scores yielded by the TAP, a composite score is also obtained. It essentially represents student performance at a designated grade level across the combined subscales. Scores from the TAP are reported in standard score form with a mean (average) of 50 and a standard deviation of 10. The state norm is 50.

Student achievement will be presented in two parts:

I. Test of Academic Progress - 1979
   - A. Magnet vs Comparison Schools
   - B. Magnet vs Magnet School
   - C. Pilot vs Comparison Schools

II. Longitudinal Achievement Comparisons - 1977 through 1979
   - A. Visual and Performing Arts
   - B. Academy of Mathematics and Science
   - C. Business and Office

Part 1. Test of Academic Progress - 1979

Magnet vs Comparison Schools

The achievement of secondary school magnet students was compared to the achievement of students at the comparison secondary schools on the TAP test. Grade level comparisons were made by group, that is, magnet school student achievement was compared to comparison school student achievement at each grade level on each subtest to determine what, if any, differences in achievement existed between the two groups. Table 4.1 presents the group data by grade level and subtest scores.

At the tenth grade level only marginal achievement differences were indicated between the two groups. Magnet school tenth graders scored slightly above their comparison group in social studies, composition, science and the composite score. Conversely, the comparison group scored slightly above the magnet students on the reading and mathematics subtests. Hence, differences between the two groups at the tenth grade level were not sufficient magnitude to indicate 'real' achievement differences. At the eleventh grade level magnet school students scored significantly higher than the comparison group in each subtest area (with the exception of science) and the composite results. The science subtest score was higher for magnet students also, but the variation was not large enough to indicate a greater-than-chance difference.

In terms of group averages, both the magnet and comparison groups scored substantially below the state norm (50) at the tenth grade level. Generally, scores improved at the eleventh grade level for both groups, although neither groups' scores equalled the state norm. Eleventh grade magnet school subtest averages more closely approximated the state norm, varying a maximum of -3.2 points (46.8) from the state norm (50). Eleventh grade comparison group subtest averages, although higher than tenth grade averages, were still considerably lower than the state norm. At the twelfth grade level the magnet school subtest averages were reasonably close to, yet lower than, the state norm except the mathematics subtest average which equalled the state norm. There was no achievement data collected on the twelfth grade comparison group.

The general trend for both groups on the TAP test this year indicated (1) very low achievement levels at the tenth grade level and (2) below average achievement scores at the eleventh grade level. However, magnet school

Table 4.1

1979 Magnet and Comparison Group Averages
By Grade Level By Subtest

GROUP	GRADE	S. STUDIES	COMP.	SCIENCE	READING	MATH	COMPOSITE
Magnet School Average	10	43.4	43.8	43.0	40.8	41.7	41.8
Comparison Average	10	41.9	42.5	42.3	42.0	42.6	41.6
Magnet School Average	11	47.5*	48.3*	46.8	47.9*	47.3*	46.8*
Comparison Average	11	44.5	44.6	44.1	44.2	42.7	43.9
Magnet School Average	12	45.3	46.8	46.1	46.1	50.4	46.1

*The asterisks indicate the subtests on which the magnet school achievement level was significantly higher than that of the comparison group. The statistical t test was used to determine the level of significance (.05).

eleventh grade averages were very close to the state norm, whereas comparison schools achieved at levels considerably below the state norm.

Magnet vs Magnet School

Table 4.2 details achievement test scores by school, grade level, and subtest average. There was a wide range of scores between the magnet schools at each grade level (10-12). This wide variation was essentially due to the comparatively high scores achieved at the Academy of Mathematics and Science (AMS) and the relatively low scores achieved at Visual and Performing Arts (VPAH) and Business and Office High (BOH). In fact, in the previous group analysis (magnet vs comparison), the scores at AMS had a positive effect on the overall magnet school average on each subtest at each grade level. But, because of the large number of students tested at BOH at the tenth grade level, the comparatively high scores at the Academy had a smaller effect on the magnet school subtest averages. Student achievement at the Academy was substantially higher than student achievement at the Arts or Business high schools on each subtest except eleventh grade science. The achievement of eleventh grade students in science at the Arts high school was comparable to that of eleventh graders at the Academy.

Generally, the achievement test scores of students at the Arts (VPAH) and Business (BOH) magnet schools was comparable on most subtests. At both sites scores were very low at the tenth and twelfth grade levels and higher at the eleventh grade level. Tenth and twelfth graders at VPAH and BOH scored substantially below the state norm on each subtest. But, at the eleventh grade level scores at VPAH were considerably higher, thus closer to the state norm, even though the reading subtest score remained considerably below the state norm. However, VPAH students scored considerably higher than BOH students on eleventh grade mathematics.

Magnet school grade level trends for the most recent testing on the TAP indicated:

1) *Business and Office High -*

   10th grade - subtest scores and composite were substantially below the state norm.

   11th grade - subtest and composite scores were higher than tenth grade, yet considerably below the state norm.

   12th grade - subtest and composite scores were considerably below the state norm (except reading which was substantially below the norm).

TABLE 4.2

TAP Test - Magnet vs Comparison

1979 School and Group Grade Level by Subtest Averages

SCHOOL	GRADE	NUMBER TESTED	S. STUDIES	COMP.	SCIENCE	READING	MATH	COMPOSITE
VPAH	10	34	40.1	40.3	41.2	38.6	39.5	39.3
AMS	10	34	52.0	50.6	51.6	52.8	54.5	52.4
BOH	10	64	40.6	42.1	39.4	36.4	36.9	38.3
Magnet Ave.	10	132	43.4	43.8	43.0	40.8	41.7	41.8
McKinley	10	38	39.2	40.4	39.8	40.5	38.7	39.2
Roosevelt	10	40	44.5	44.4	44.7	44.2	48.2	45.2
Comparison Ave.	10	78	41.9	42.5	42.3	42.0	42.6	41.6
SCHOOL	GRADE	NUMBER TESTED	S. STUDIES	COMP.	SCIENCE	READING	MATH	COMPOSITE
VPAH	11	27	45.7	46.3	46.0	43.9	45.3	44.8
AMS	11	29	51.8	51.9	49.4	54.5	52.8	51.6
BOH	11	16	43.6	45.8	43.5	42.7	40.8	42.7
Magnet Ave.	11	72	47.5	48.3	46.8	47.9	47.3	46.8
McKinley	11	36	41.6	44.1	40.9	44.4	43.3	42.5
Roosevelt	11	33	47.6	45.2	47.4	43.9	41.7	43.8
Comparison Ave.	11	69	44.5	44.6	44.1	44.2	42.7	43.0
SCHOOL	GRADE	NUMBER TESTED	S. STUDIES	COMP.	SCIENCE	READING	MATH	COMPOSITE
VPAH	12	7	40.4	42.7	42.5	*	*	46.0
AMS	12	29	50.5	53.4	52.8	55.3	59.6	52.5
BOH	12	12	43.3	43.2	42.3	38.9	42.2	41.8
Magnet Ave.	12	48	45.3	46.8	46.1	46.1	50.4	46.1

*No group average is given for these subtests because only one student completed them.

2) *Visual and Performing Arts High -*

10th grade - subtest and composite scores were substantially below the state norm.

11th grade - subtest scores (except reading) closely approximated the state norm. Reading and the composite scores were considerably lower than the norm.

12th grade - subtest scores were substantially below the state norm. The composite score was close to the norm.

3) *Academy of Mathematics and Science -*

All subtest and composite scores were at or above the state norm (except eleventh grade science). Twelfth grade reading and math scores were considerably above the state norm.

Interpretation of these data are rather seriously constrained by the absence of appropriate data on students' previous achievement levels. However, it is not surprising that the students at the Academy of Math and Science scored substantially higher than the students at the Arts and Business high schools. Although there are no academic prerequisites for magnet school enrollment, it may well be that students who elect to attend the Academy have higher academic aspirations than students who elect to attend the Arts and Business high schools. It is also important to note that in most instances, the subtest scores at VPAH and BOH are comparable to the scores achieved at the comparison schools.

Pilot vs Control Schools

The schools selected as pilot schools in the magnet school program were Northwest and Sumner. The control or comparison schools selected, Soldan and Beaumont, were the counterparts to the same geographical subdistrict as the pilot schools, i.e., Northwest-Soldan District and the Beaumont-Sumner District.

Table 4.3 presents the scores of the pilot and pilot control schools for the tenth and eleventh grades. Statistically significant differences in student achievement were noted between the pilot and control schools for each subtest and composite score with the exception of the tenth grade math subtest. Students in the pilot high school (Sumner) achieved higher scores on all subtests, even though the math subtest did not indicate a significant difference.*

Both the pilot and comparison schools scored below the state norm at the tenth and eleventh grade levels on each subtest. At the tenth grade level the pilot school students scored considerably below the norm on each subtest except composition which was relatively close to the norm. Comparison schools scored substantially below the state norm at the tenth grade level (except at Beaumont on the composition subtest). Eleventh graders at the comparison schools scored substantially below the norm also. However, pilot school eleventh graders scored reasonably close to the norm. On each subtest except social studies, twelfth grade pilot students scored at or near the state norm. The social studies subtest score was considerably below the norm.

Those findings must be considered in terms of the populations tested. The pilot high school, Sumner, reflects achievement levels of students enrolled in the College Prep Program whereas the students in the comparison schools, Beaumont and Soldan, were randomly selected from the general school population. Given the design of the study, these findings are not as surprising as they may have initially appeared. The higher level of achievement may well reflect a higher level of academic aspiration for the students in the College Prep Program.

**The data from the Northwest pilot school were not available at the time this report was produced.*

TABLE 4.3

TAP Test Pilot vs Control

1979 School and Group Grade Level Subtest Averages

School	Grade	Number Tested	Soc. Studies	Comp.	Science	Reading	Math	Composite
Sumner	10	77	43.4*	46.8*	44.3*	43.9*	43.5	44.1*
Beaumont	10	39	42.7	45.1	42.6	40.5	43.3	42.5
Soldan	10	40	40.3	41.0	40.9	38.4	39.9	39.3
Comparison Average	10	79	41.5	43.0	41.7	39.5	41.6	40.9
School	Grade	Number Tested	Soc. Studies	Comp.	Science	Reading	Math	Composite
Sumner	11	71	45.8*	47.1*	47.7*	46.1*	47.7*	46.4*
Beaumont	11	36	40.0	43.4	43.0	41.1	42.1	41.4
Soldan	11	40	40.3	41.5	42.1	43.2	44.1	42.1
Comparison Average	11	76	40.2	42.4	42.5	42.1	43.1	41.7
School	Grade	Number Tested	Soc. Studies	Comp.	Science	Reading	Math	Composite
Sumner	12	15	42.3	47.9	48.6	51.4	53.3	46.8

*The asterisks indicate the subtests on which the pilot school achievement level was significantly higher than that of the control group.

In spite of this limitation, one important observation can be made. The scores for the College Prep students tend to be below the state average. This is true for all subtests except reading and math, on which the average scores of twelfth grade students were slightly above the state average. Since high school academic achievement bears a significant relationship to collegiate academic achievement, it is likely that a large number of these students will still encounter serious difficulties in coping with the academic demands of college.

Part 2. Longitudinal Achievement Comparisons

Longitudinal achievement comparisons were made within each magnet school over the three year span of program operation to determine (1) if there was a change in student achievement levels and, if so (2) the direction of that change. Two types of longitudinal comparisons were made:

1) cross sectional comparisons - within each grade over time, e.g., tenth grade achievement levels in 1977, 1978, and 1979,

2) sequential comparisons - tracking classes and comparing achievement scores across grades between years in a logical progression, e.g., tenth grade 1977, eleventh grade 1978, and twelfth grade 1979.

In the cross - sectional comparisons, achievement is compared at the same grade level over the three academic years. Care must be taken with the interpretation of these data because the previous level of achievement is not known and the data were not collected on the same students, but the same grade. These data merely inform the investigator of the relative standing of each class as compared to the average level of achievement for secondary students in the state. On the other hand, sequential comparisons do imply a "same-student" comparison over time. Because of the intervening variables that operate within a school system and a program which is based upon voluntary enrollment (e.g., student transfers), this assumption may be faulty. That is, sequential comparisons in the study are not necessarily true "same-student" comparisons. The data represent same-student comparisons to the extent that individual classes remain intact over time.

Table 4.4 presents the cross - sectional data within each magnet secondary school. Figures 4.2 through 4.4 present a graphic representation of cross - sectional data by subtest for each magnet school. Table 4.5 presents the sequential data and Figure 4.1 presents the graphic representation of the sequential comparison data for each magnet school.

Table 4.4. Magnet Schools - Cross-Sectional Comparisons

chool	S. Studies			Comp.			Science			Read.			Math		
	'77	'78	'79	'77	'78	'79	'77	'78	'79	'77	'78	'79	'77	'78	'79
PAH	40.3	44.1	40.1	41.3	42.9	40.3	40.0	45.5	41.2	41.7	40.8	38.6	39.3	42.2	39.5
.S	42.4	44.1	52.0	43.1	44.1	50.6	46.6	44.1	51.6	45.1	52.8	44.2	42.4	43.6	54.5
OH	-	44.2	40.6	-	45.8	42.1	-	40.2	39.4	-	41.1	36.4	-	41.4	36.9
0th gr.															
PAH	43.8	45.1	45.7	43.1	44.6	46.3	40.5	48.3	46.0	44.4	45.5	43.9	43.4	47.0	45.3
IS	46.7	47.3	51.8	45.4	46.7	51.9	48.9	47.3	49.4	47.4	48.1	54.5	50.4	48.8	52.8
OH	-	40.3	43.6	-	43.4	45.8	-	43.1	43.5	-	41.6	42.7	-	38.3	40.8
1th gr.															
PAH	49.9	46.0	40.4	48.7	46.4	42.7	50.5	43.3	42.5	48.7	43.7	41.0	48.3	43.4	47.0
IS	-	43.5	50.5	-	44.0	53.4	-	49.0	52.8	-	48.7	55.3	-	47.1	59.6
OH	-	59.3	43.3	-	53.0	43.2	-	52.3	42.3	-	49.5	38.9	-	52.5	42.2
2th gr.															

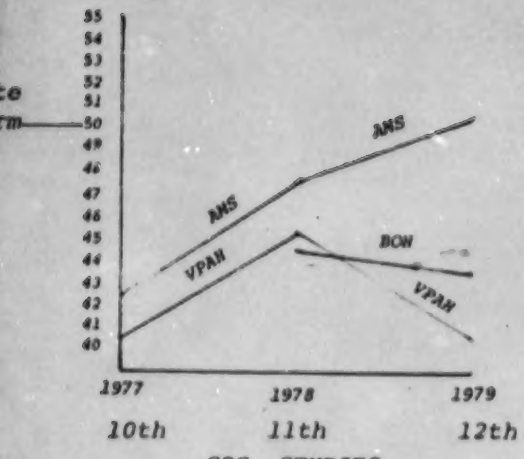
Table 4.5. Magnet Schools - Sequential Comparison

	'77	'78	'79	'77	'78	'79	'77	'78	'79	'77	'78	'79	'77	'78	'79
	10	11	12	10	11	12	10	11	12	10	11	12	10	11	12
AH	40.3	45.1	40.4	41.3	44.6	42.7	40.0	48.3	42.5	41.7	45.5	41.0	39.3	47.0	47.0
S	42.4	47.3	50.5	43.1	46.7	53.4	46.6	47.3	52.8	45.1	48.1	55.3	42.4	48.8	59.6
H*	-	44.2	43.6	-	45.8	45.8	-	40.2	43.5	-	41.1	42.7	-	41.4	40.8

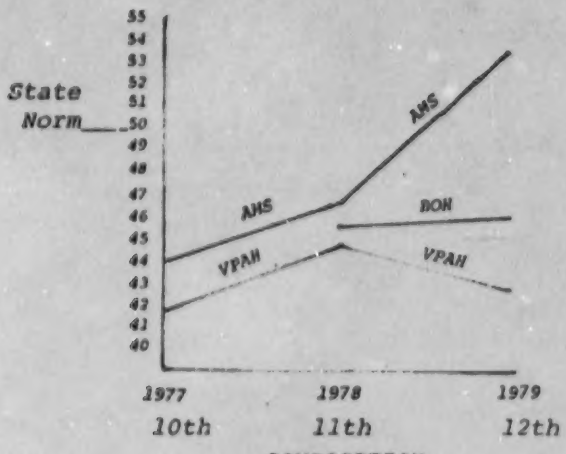
*BOH was not in operation during 1977, therefore 10th and 11th grade scores for 1978 and 1979 are placed in the 11th and 12th grade categories.

Figure 4.1

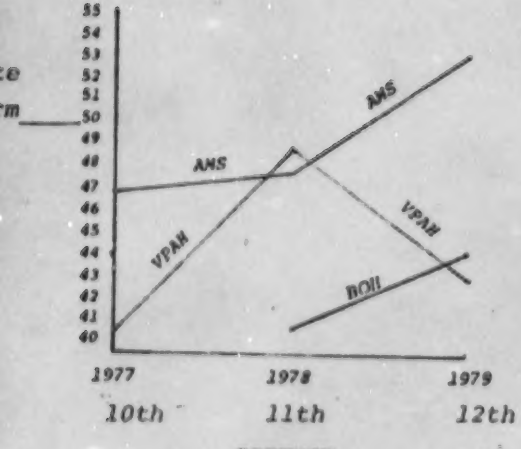
MAGNET SCHOOL SEQUENTIAL COMPARISONS*



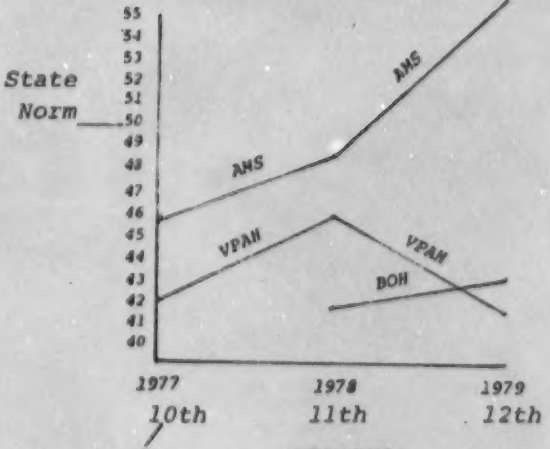
SOC. STUDIES



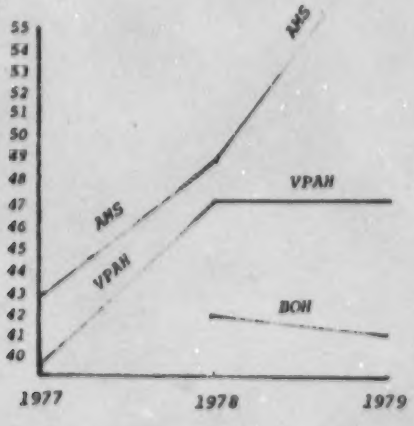
COMPOSITION



SCIENCE



READING



MATH

Legend
VPAH-Visual and Performing Arts
AMS -Academy of Math and Science
BOH -Business and Office High

*BOH scores are tenth and eleventh grade scores for 1978 and 1979, respectively.

Visual and Performing Arts HIgh School -

Cross-sectional Comparisons -

As indicated in Table 4.4 and Figure 4.2, in 1977 the tenth grade class at VPAH scored substantially below the state norm (50) on all subtests. Tenth grade scores were higher in 1978 than in 1977 but still substantially below the state norm on every subtest except social studies and science. In the most recent TAP testing (1979) all tenth grade subtest scores were again substantially below the state norm. The data clearly indicate that tenth graders at VPAH generally achieve at substantially lower levels in the basic subject areas than the average student in the state. The trend pattern for TAP test achievement at the tenth grade level was down (1977) - up (1978) - down (1979) pattern. At no time, however was the state norm achieved on any subtest over the three years.

In 1977 the eleventh grade class scored considerably below the state norm on most subtests. The science subtest average was substantially below the norm (-9.5 points). In 1978 the eleventh grade subtest scores more closely approximated the state norm, particularly in math and science, although no subtest score was equal to it. The 1979 eleventh grade class achieved at comparable levels to the 1978 eleventh grade class. There was little variation in subtest scores from year to year, as such, but the direction of the between year (classes) variation was positive for the most part. That is, eleventh graders were substantially below the state norm (50) in 1977, in 1978 eleventh grade scores were closer to the state norm, and 1979 eleventh grade scores were comparable to those achieved in 1978. There was only a slight fluctuation in eleventh grade scores between 1978 and 1979.

In 1977 at the twelfth grade level subtest scores were at or near the state average. Twelfth graders at VPAH scored considerably lower in 1978 than in 1977, particularly in science, reading, and math. Students scored considerably below the state norm on those subtests in 1978. In 1979 VPAH twelfth graders scored substantially below the state norm on every subtest except mathematics which was reasonably close to the state norm.

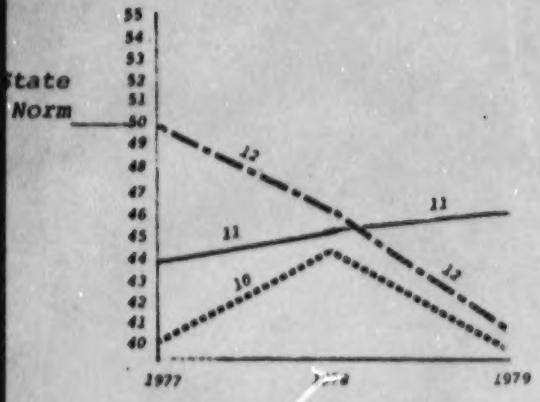
Sequential Comparisons -

Students enrolled at the tenth grade level at VPAH in 1977 scored substantially below the state norm on every subtest. In 1978 eleventh grade subtest scores increased considerably over those achieved by tenth graders (1977), particularly in science (+8.3) and mathematics (+7.7). Twelfth

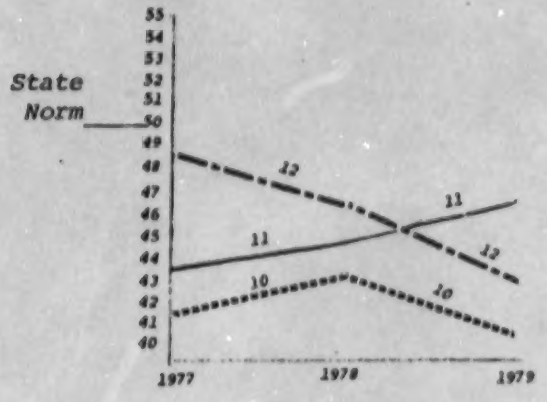
grade scores in 1979 were considerably lower than those achieved by eleventh graders (1978) except in math which remained constant between years. Hence, tenth grade student achievement (1977) was very low as compared to the state norm; eleventh grade student achievement (1978) was higher and considerably close to the state norm; and twelfth grade student achievement (1979) was considerably below the state norm (except in math). The trend line indicated in Figure 4.1 graphically presents the pattern of sequential achievement.

Figure 4.2. Magnet School Cross-Sectional Comparisons 1977-1979

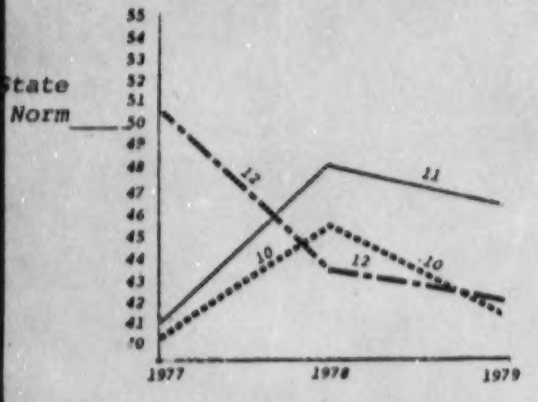
Visual and Performing Arts High



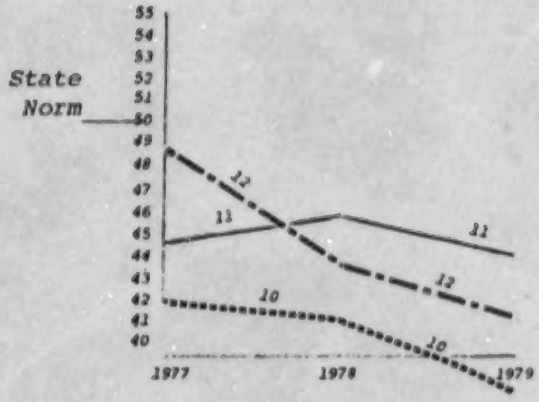
Social Studies



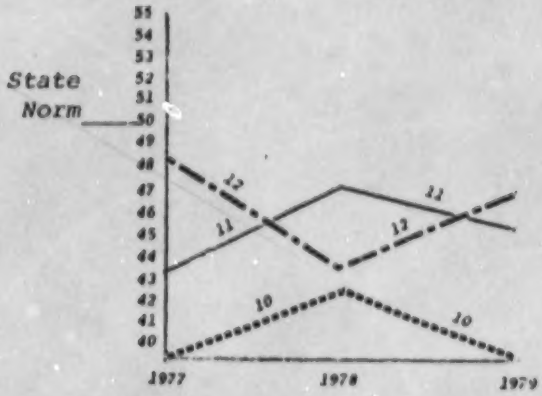
Composition



Science



Reading



Mathematics

Legend

Tenth Grade .....

Eleventh Grade _____

Twelfth Grade —·—·—

Academy of Mathematics and Science

Cross - sectional Comparisons -

Cross - sectional comparisons made at the tenth grade level at AMS indicated (1) substantially low scores in 1977, (2) considerably low tenth grade scores in 1978, and (3) favorable scores at the tenth grade level in 1979 as compared to the state norm. Generally, tenth grade scores improved between 1977 and 1978 (except in science) and between 1978 and 1979 (except in reading).

Eleventh grade cross - sectional comparisons indicated that, in general, scores achieved in 1977 were reasonably close to the state norm, 1978 scores were generally higher and closer to the state norm (except in science and math), and the 1979 scores were higher and slightly above the norm (except science, which was very close to the norm).

Twelfth grade TAP test cross - sectional comparisons were made for the academic years ending in 1978 and 1979. Scores achieved by twelfth graders in 1978 were reasonably close to the state norm on three of the five subtests and scores achieved in 1979 were at or above the state norm. The twelfth grade scores improved between 1978 and 1979 from levels somewhat below the norm to levels above the norm. The reading and mathematics subtest scores achieved in 1979 were substantially above the state norm.*

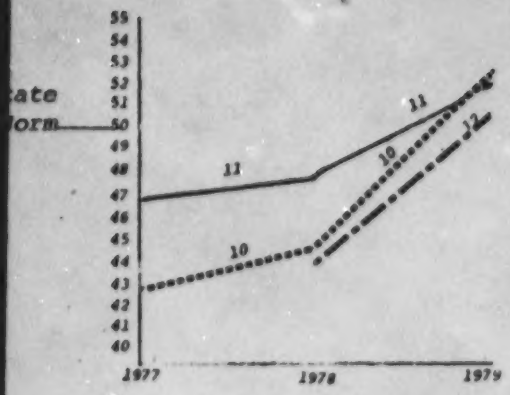
Sequential Comparisons -

As indicated in Table 4.5 and Figure 4.1, a steady increase in scores (by sequential grade levels) has occurred at AMS. In 1977 tenth grade subtests scores were considerably below the state norm; in 1978 eleventh grade subtest scores increased to levels which closely approximated the state norm, and in 1979 all subtest scores equalled or exceeded the state norm. The most significant gain at AMS was in mathematics (+17.2 points) which increased from 42.4 during the tenth grade testing (1977) to 59.6 during the twelfth grade testing (1979).

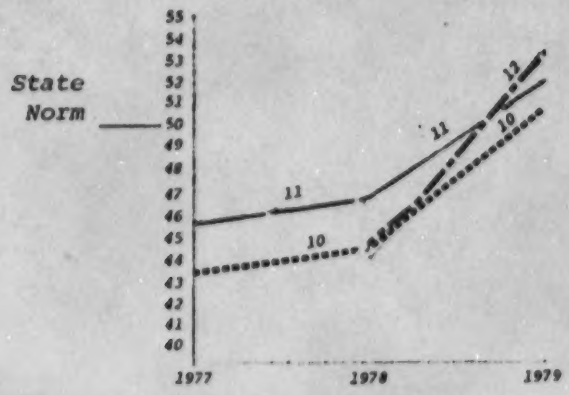
**There were no twelfth graders enrolled at AMS in 1979.*

Figure 4.3. Magnet School Cross-Sectional Comparisons

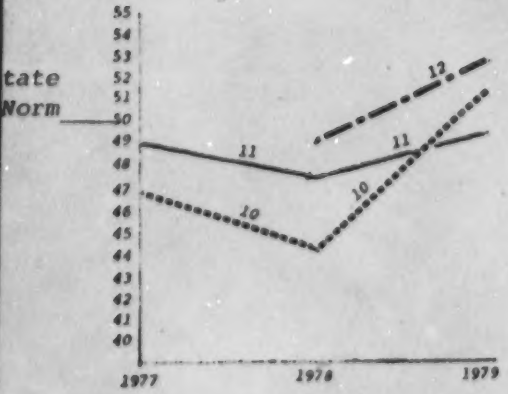
Academy of Mathematics and Science



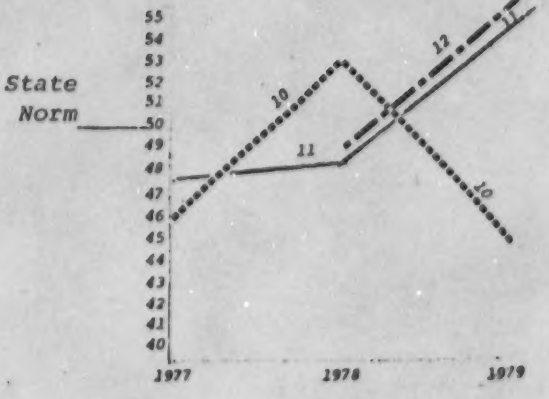
Social Studies



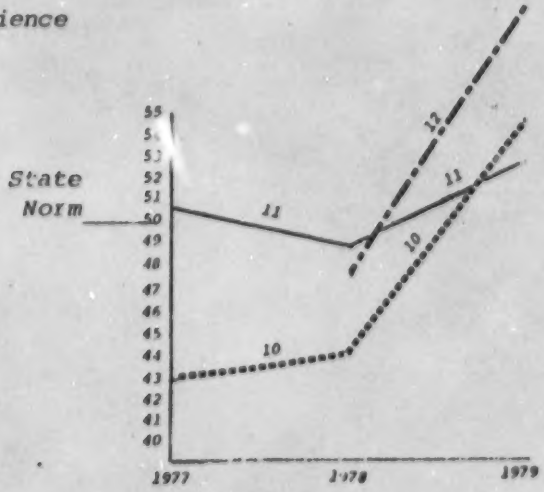
Composition



Science



Reading



Mathematics

Legend

Tenth Grade .....

Eleventh Grade ———

Twelfth Grade — · — · —

Business and Office High School

Cross - sectional Comparisons -

Business and Office High School did not become operational as a secondary magnet school facility until the 1977-1978 academic year, therefore, all comparisons were made between the academic years ending 1978 and 1979. Cross - sectional comparisons made at the tenth grade level at BOH indicate that (1) in 1978 tenth graders achieved scores substantially below the state norm on three of the five subtests (all subtest scores were below the norm, however) and (2) in 1979 tenth graders achieved even lower scores on every subtest whereby all subtest scores were substantially below the norm. There was a downward achievement trend at BOH at the tenth grade level.

At the eleventh grade level cross - sectional comparisons indicated that in 1978 scores achieved at BOH were substantially below the state norm. The 1979 eleventh grade class achieved comparable scores to the 1978 eleventh graders. That is, although minimal increases were indicated on each subtest between 1978 and 1979, the eleventh graders at BOH achieved scores considerably below the state norm in both academic years.

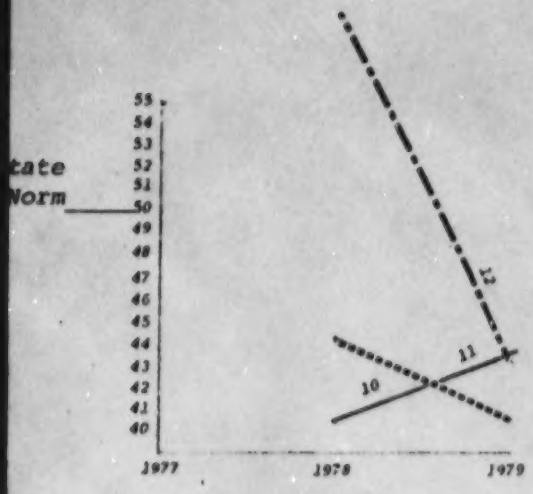
Cross - sectional comparisons made at the twelfth grade level at BOH indicate that (1) in 1978 subtest scores were at or above the state norm and (2) in 1979 subtest scores achieved by twelfth graders were substantially below the state norm. It should be noted, however, that in 1978 only four students comprised the test population for the twelfth grade at BOH, whereas twelve students participated in the 1979 test administration at that grade level.

Sequential Comparisons -

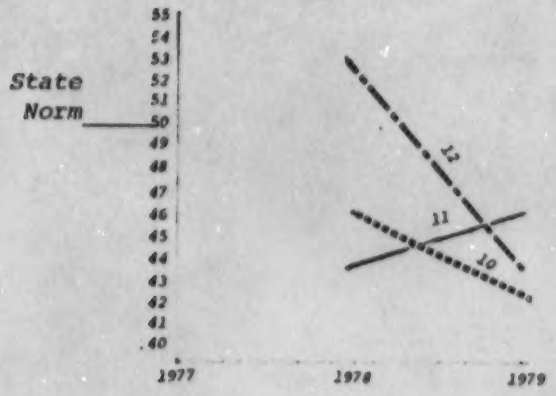
In 1978 tenth graders at BOH scored substantially below the state norm. The social studies and composition subtests scores, although higher, were still considerably below the norm. In 1979 eleventh grade scores reflected minimal changes but, for the most part, remained considerably below the norm.

Figure 4.4. 1979 Magnet School Cross-Sectional Comparisons

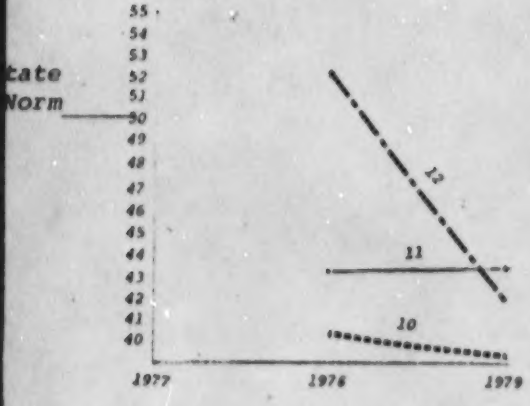
Business and Office High



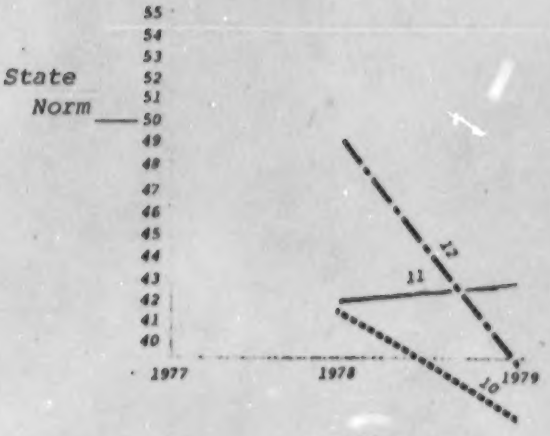
Social Studies



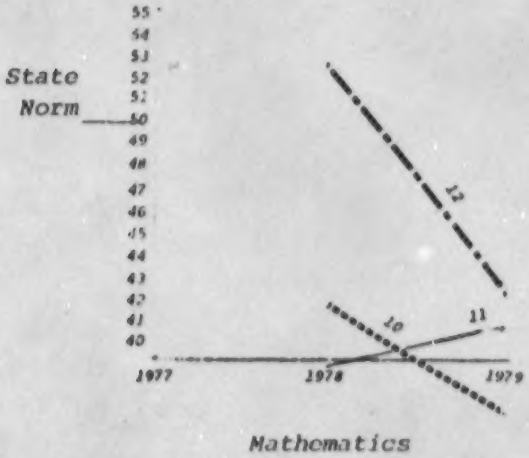
Composition



Science



Reading



Mathematics

Legend

Tenth Grade .....

Eleventh Grade _____

Twelfth Grade -.-._.-..

CHAPTER 5. TEACHER-STUDENT RELATIONSHIPS SCALE

Interpersonal relationships are important in any school situation. In voluntary desegregation settings, such as those that exist in the magnet schools, such relationships are not only critical but complex. Critical because, if such relationships become a source of dissatisfaction, they can easily lead to departures of students from the program. Complex because they are affected not only by the normal factors associated with people getting along with each other, but also by varying cultural backgrounds and experiences of students and teachers who are participating in what is basically an experiment.

Because of the importance of these relationships, much of the evaluation effort for the first three years of the magnet school program was directed toward assessing the quality of the relationships between and among black and white students (and teachers). This section of the report is concerned with students' and teachers' perceptions of the quality of relationships in the magnet schools, as measured by the Teacher-Student Relationships Scale.

The Instruments

The Teacher-Student Relationships Scale (TSRS) was developed by Division of Evaluation staff during the first year of the project. Separate instruments were developed for use with students (Form A) and with teachers (Form B). Each test consisted of forty items designed to provide measures of attitudes in four dimensions or scales. (10 items per scale). On the student form these were: (1) General Satisfaction with the School, (2) Relationships among Students 3) Student Relationships with Teachers, and (4) Student Relationships with Administration. Corresponding scales on the teachers' form were: (1) Attitude Toward Integrated Schools, (2) Relationships Among Students. (3) Relationships between students and teachers, and (4) Within Staff Relationships. Responses were made on a 5-point scale (Strongly Disagree to Strongly Agree), with the items balanced so that half were worded positively (i.e., so that positive reactions would be represented by agreement) and half were worded negatively (i.e., so that positive reactions would be indicated by disagreement.) Sample items for each of the two tests are presented in Table 1.

The instrument was administered by Evaluation staff members near the end of each of the first three years of the project, in May of 1977, May,

1978, and May and June of 1979. In the elementary magnet schools, Form A was given to all 7th and 8th grade students, and Form B was given to all teachers. In the secondary schools, all students and teachers were administered their respective forms. Due to the sensitivity of many of the items on the instrument, no information which would enable identification of any individual was requested. Only basic demographic information (school, sex, race) necessary for data analysis was requested. All scoring and data analysis was done locally, using data processing facilities of the St. Louis Public Schools.

TABLE 1 - TSRS EXAMPLE ITEMS

Form	Scale	Positively Stated Items	Negatively Stated Items
Student	1. (Satisfaction)	I have really liked school this year.	I would rather go to a different school next year.
	2. (Relationships among students)	Black and white students socialize freely outside of class.	I would prefer to be in a school with students mainly of my own race.
	3. (Relationships with teachers)	Teachers are interested in helping all students, regardless of race.	Teachers are tougher on Black students.
	4. (Relationships with Administration)	The principal really wants to eliminate social prejudice in this school.	The administration of this school favors white students.
Teacher	1. (Integrated Schools)	Teaching in a racially integrated school gives me a great deal of professional satisfaction.	There are more discipline problems in an integrated school than in a non-integrated school.
	2. (Relationships among students)	There is no racial tension among students at this school.	Most students would rather attend school with students mainly of their own race.
	3. (Relationships between students and teachers)	Teachers are most interested in helping all students regardless of race.	Teachers here avoid talking about racial problems they experience with students.
	4. (Within Staff Relationships)	Racial problems are freely discussed among the staff at this school.	There is a lot of racial tension among the staff at this school.

RESULTS - STUDENT FORM

Results of the administration of the student form are summarized in Tables 2 - 5. Perhaps the most salient characteristic of the TSRS data is the substantial variation of averages among schools. In the latest testing period, for example, average scores on the Satisfaction scale ranged from 29.4 in the Plan program (for white students) to 37.1 at the Visual and Performing Arts High School (also for white students). Statistical tests (Analysis of Variance) indicate that this variation among the schools is highly significant for all four scales. That is, the differences that are seen among the schools can be viewed as reflecting "real", as opposed to chance differences. The clear implication is that students in the different magnet schools are having qualitatively different kinds of experiences with respect to their relationships with other students and adults in the schools.

It is also of importance to note that perceptions of black and white students differed significantly, and in opposite directions, in two areas. There was a strong tendency for white students to see relationships among students less positively than did black students. These differences were largest at IGE, VPAC and the Business and Office High School. In each case, the differences indicated that the white students were clearly less favorable in their perceptions of relationships among students. The group at VPAC, in fact, dropped considerably in its perception of the quality of relationships among students from the first to the third year. These differences point to the possibility of some developing racial tensions that should be addressed.

Two schools which were notable exceptions to this pattern were the Academy of Basic Instruction at Waring School and the Foreign Language Experience School at Mullanphy, in which white students reported perceptions which were more positive than those of the black students and which also were among the most positive of those of white students in any of the magnet schools. The very positive perceptions of white students at Waring in this area were observed and noted in the Year 2 evaluation report.

The other area in which black and white students differed significantly in their perceptions was that of relationships between students and school administrators (primarily the principal). This difference has been both strong and dramatic all three years of the project, with black students

TABLE 2

Group Means for Teacher - Student Relationships Scale

SCALE: Satisfaction With School

SCHOOL	WHITE STUDENTS			BLACK STUDENTS		
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
I #1	31.5	32.7	33.5	33.1	35.9	34.8
CE	26.0	31.9	35.8	29.4	32.5	32.3
E	36.4	34.1	33.1	34.8	34.1	33.8
C	36.3	34.1	37.0	34.1	32.5	36.1
AN	31.6	25.4	29.4	33.6	30.9	32.6
AC	36.3	35.5	33.3	35.9	35.9	36.5
I #2	---	32.0	36.9	---	32.4	35.9
ES	---	31.5	31.6	---	33.6	33.3
. Ave.	33.0	32.2	33.8	33.5	33.5	34.2
parison	31.6	---	---	30.6	---	---
mentary						
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
HS	31.7	35.6	33.9	33.2	33.6	32.0
HS	42.1	37.6	37.2	38.2	37.2	36.7
S	---	33.8	34.1	---	34.3	33.8
. Ave.	36.9	35.7	---	35.1	35.0	34.2
trol	32.8	30.2	---	31.5	31.4	---
.						

TABLE 3

SCALE: Relationships Among Students

HOOL	WHITE STUDENTS YEAR 1	YEAR 2	YEAR 3	BLACK STUDENTS YEAR 1	YEAR 2	YEAR 3
I #1	31.3	29.1	33.4	33.7	34.6	36.7
CE	33.1	32.1	34.6	31.1	33.5	35.3
E	32.4	30.3	30.5	33.9	33.9	35.1
C	33.1	35.4	35.5	34.7	35.0	36.9
AN	28.5	26.8	29.8	31.0	30.5	32.7
AC	37.3	32.6	29.5	35.8	33.9	33.8
I #2	--	36.8	37.7	--	35.3	36.1
ES	--	29.6	35.2	--	32.0	33.7
g. Ave.	33.0	31.3	32.0	33.4	33.6	34.9
mparison	28.8			31.0		
ementary						
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
SHS	30.8	34.4	35.1	35.2	34.9	35.0
PHS	38.2	35.2	34.8	36.7	35.3	37.0
HS	--	32.3	30.3	--	34.4	34.5
g. Ave.	34.1	34.0	33.4	36.0	34.9	35.5
ntrol	28.8	28.2	--	31.6	30.7	--
o.						

TABLE 4

SCALE: Student-Teacher Relationships

SCHOOL	WHITE STUDENTS			BLACK STUDENTS		
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
I #1	35.4	36.1	38.5	35.7	36.7	37.5
CE	32.9	35.6	38.0	34.6	35.7	37.0
E	37.5	36.7	37.0	35.4	35.4	36.4
C	35.7	38.0	40.3	34.9	35.7	37.2
AN	31.5	31.7	33.5	33.4	33.2	36.2
AC	37.7	36.1	34.9	33.0	34.6	35.3
I #2	---	37.4	39.1	---	35.8	37.0
ES	------	34.4	33.4	---	33.9	34.5
g. Ave.	35.1	35.8	36.8	34.5	35.1	36.4
mparison	34.9			32.6		
cmentary						
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
SHS	33.4	36.1	35.7	33.5	35.1	35.0
PHS	38.2	36.4	36.9	36.3	35.4	36.7
IS	---	35.9	35.6	---	34.3	34.5
g. Ave.	35.8	36.1	36.1	34.9	34.9	35.4
ntrol	34.4	34.0	---	33.7	32.9	---
e.						

TABLE 5

SCALE: Student-Administration Relationships

OOL	WHITE STUDENTS YEAR 1	YEAR 2	YEAR 3	BLACK STUDENTS YEAR 1	YEAR 2	YEAR 3
#1	36.4	35.7	39.4	34.6	37.4	38.4
E	30.7	36.0	36.6	33.4	32.0	35.5
	36.2	34.0	36.6	33.4	36.0	38.9
	37.3	39.4	41.5	34.5	36.0	38.9
N	32.6	31.5	33.5	32.9	30.4	36.0
C	38.5	36.7	35.0	33.4	32.9	33.7
#2	--	34.6	37.6	--	35.4	35.9
S	--	32.4	36.1	--	36.5	35.2
. Ave.	35.3	35.0	37.0	32.5	33.8	35.6
parison	34.6	---	---	31.4	---	---
mentary						
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
IS	35.2	38.2	36.9	33.0	34.2	33.5
IS	40.6	38.4	37.7	36.7	36.5	36.5
E		37.6	36.5		32.5	30.9
. Ave.	37.9	38.1	37.0	34.8	34.4	33.6
trol	35.3	34.8	--	31.8	32.0	--
.						

perceiving this area much less positively than white students. The difference tends to be somewhat greater with the high school students than with the elementary students and indicates at least a perception on the part of black students that white students seem to receive somewhat favored treatment at the hands of school administrators. It should, however, be noted that the black-white differences on this measure has narrowed from year 1 to year 3, with both groups showing some improvement in this regard. Yet, this difference, as well as the difference in perceived quality of relationships among students, should remain of some concern to those interested in the success of the magnet school program.

RESULTS - TEACHER FORM

Data obtained from the Teachers of the TSRS are reported in Tables 6 - 9. As was the case with the student data discussed above, the response of teachers to the TSRS scale provided significant variation among schools. One exception to this was the Relationships Between Students and Teachers scale, on which responses were fairly uniform among the schools. In general, though, the variability among the schools seems to reflect varying experiences and perceptions of teachers associated with each of the different magnet programs.

Differences between black and white teachers existed on two of the four scales (Attitude Toward Integrated Schools and Relationships Between Students and Teachers). On the latter of these two measures, the differences were reasonably consistent across schools, indicating more positive perceptions in this area for white teachers than for black teachers. Although it is not known which, if either, of the two groups of teachers is more accurate in its perceptions, it is clear that black and white teachers do not perceive relationships between students and teachers in the same light.

On the first scale (Attitude Toward Integrated Schools) there were also differences between black and white teachers, but the differences varied considerably from school to school. At PLAN and ABI #2, for example, black teachers responded much more positively than did white teachers, but at the Academy of Mathematics and Sciences the opposite was true. In each case the differences seemed to be due primarily to somewhat uncharacteristic responses on the part of white teachers. That is, black teachers in these three schools responded about as favorably as black teachers in the other magnet schools. But, at PLAN and ABI #2 white teachers were much <u>less</u> positive than white teachers at other magnet schools, while white teachers at AMS were much <u>more</u> favorable than white teachers in the other magnet schools.

TABLE 6

Group Means for Teacher - Student Relationships Scale

FORM: Teachers

SCALE: Attitude Toward Integrated Schools

HOOL	WHITE TEACHERS YEAR 1	YEAR 2	YEAR 3	BLACK TEACHERS YEAR 1	YEAR 2	YEAR 3
I #1	38.6	35.2	34.8	36.9	38.9	36.5
CE	35.9	38.9	36.5	40.0	40.4	36.1
E	33.6	38.1	38.1	36.2	35.8	35.2
C	32.3	32.3	36.9	39.3	38.0	41.4
AN	35.9	31.7	26.7	39.0	34.8	33.8
AC	33.9	34.9	34.0	36.0	39.7	34.0
I #2	---	34.3	30.0	---	36.1	37.7
ES	---	41.0	41.0	40.7	---	---
. Ave.	35.0	35.8	34.6	37.9	37.7	36.4
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
GHS	38.1	36.8	39.6	37.0	36.7	34.5
PHS	39.0	38.6	39.3	41.3	37.6	37.2
HS	---	38.6	33.0	---	34.5	37.8
. Ave.	38.6	38.0	37.3	39.2	36.3	36.5
trol .	32.4	31.9	--	40.5	39.8	--

TABLE 7

Group Means for Teacher - Student Relationships Scale

FORM: Teachers

SCALE: Student - Student Relationships

HOOL	WHITE TEACHERS YEAR 1	YEAR 2	YEAR 3	BLACK TEACHERS YEAR 1	YEAR 2	YEAR 3
I #1	38.3	36.6	36.4	39.7	40.0	40.1
CE	35.3	38.0	39.2	39.2	37.4	35.4
E	36.0	37.8	36.6	33.8	36.5	32.8
C	37.0	35.1	39.5	40.7	40.9	41.6
AN	37.7	32.6	32.3	39.2	34.1	34.3
AC	33.8	35.6	32.7	34.8	37.5	35.2
I #2	--	34.8	34.6	--	39.3	40.5
ES	--	33.4	37.7	--	--	--
g. Ave.	36.3	35.5	36.1	37.9	37.9	37.1
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
SHS	35.9	33.8	37.2	34.5	36.1	35.6
PHS	37.0	39.9	38.5	37.3	36.5	36.3
HS	--	26.1	31.7		30.5	33.5
g. Ave.	36.4	33.3	35.8	35.9	34.4	35.0
ntrol p.	31.5	31.1	---	33.5	32.0	--

TABLE 8

Group Means for Teacher - Student Relationships Scale

FORM: Teachers

SCALE: Student-Teacher Relationships

HOOL	WHITE TEACHERS YEAR 1	YEAR 2	YEAR 3	BLACK TEACHERS YEAR 1	YEAR 2	YEAR 3
I #1	42.5	40.4	39.4	38.2	39.6	39.1
CE	39.1	40.6	41.2	42.8	39.3	41.1
E	35.3	38.8	39.9	35.0	37.0	33.2
C	38.3	36.4	40.3	38.3	38.6	38.8
AN	40.6	36.2	34.7	38.5	37.9	36.9
AC	37.4	40.1	40.0	36.8	39.7	36.3
I #2	--	37.8	38.8	--	37.4	33.0
ES	--	41.8	42.3	--	--	--
. Ave.	38.9	39.0	39.6	38.1	38.5	37.6
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
SHS	41.3	38.2	40.0	33.2	34.4	36.6
HS	40.0	42.4	40.7	40.8	34.9	37.0
S	--	38.1	40.0	--	35.8	37.0
. Ave.	40.6	39.6	40.2	37.0	35.0	36.9
trol .	36.2	37.4	--	35.0	36.6	--

TABLE 9

Group Means for Teacher - Student Relationships Scale

FORM: Teachers

SCALE: Within Staff Relationships

HOOL	WHITE TEACHERS YEAR 1	YEAR 2	YEAR 3	BLACK TEACHERS YEAR 1	YEAR 2	YEAR 3
I #1	40.9	38.6	37.6	40.2	39.8	37.7
CE	37.4	41.1	43.5	33.2	38.1	40.1
E	36.1	39.7	34.5	33.6	38.7	33.9
C	36.3	37.0	35.6	38.8	37.0	37.1
AN	37.1	33.8	31.3	37.3	35.4	36.2
AC	38.3	41.9	40.8	41.8	42.8	37.5
I #2	--	41.0	37.6	--	39.1	41.9
ES	--	38.0	38.3	--	--	--
g. Ave.	37.7	38.9	37.4	37.5	38.7	37.5
	YEAR 1	YEAR 2	YEAR 3	YEAR 1	YEAR 2	YEAR 3
SHS	38.4	34.2	38.3	30.5	32.7	35.2
PHS	37.9	37.3	35.7	34.0	31.5	34.3
HS	--	33.1	36.0	--	36.2	33.8
g. Ave.	38.2	34.9	36.7	32.2	33.5	34.4
ntrol p.	35.8	35.0	--	33.5	36.8	--

CONCLUSIONS

Considering the whole set of data collected with this instrument, it is difficult to make general statements about the magnet program. The variation in scores among the schools is substantial, indicating the existence of widely differing experiences and perceptions on the part of students and teachers associated with the program. There are, however, two general conclusions that can be made. First, where it was possible to collect comparison data (i.e., from other integrated schools not part of the magnet program), students and teachers in the magnet schools as a whole had more positive perceptions. Second, again at the level of the program as a whole, perceptions have not changed much over the three-year period studied. Some changes have taken place, but these have occurred within individual schools, indicating improved perceptions for some, and declines for others. Although there are some indications of possible problem areas within some schools, as would be indicated by consistently low or declining scores, the general tenor of the data seem to reflect a predominantly positive atmosphere within the majority of magnet schools.

CHAPTER 6. YOUR CLASSMATES

This section of the report is concerned with the results of sociometric testing of students in the magnet elementary schools. Since the magnet school program is committed not only to reducing racial isolation in the literal sense, but also to promoting positive relationships between black and white students, it is essential to gather and report information concerning the quality of interactions among students. To provide this kind of data, the ESAA evaluation component investigated cross-racial choice patterns on a locally-developed sociometric test which was administered to students in first through eighth grades in magnet schools and in integrated non-magnet schools used for comparison.

The sociometric instrument developed for use in the ESAA magnet school evaluation consisted of five school-related situations to which students were asked to respond by making three positive (acceptance) and three negative (rejection, choices each. The actual items presented were:

1. You are going on a field trip tomorrow:
   a. Name three classmates you would like to go with.
   b. Name three classmates you do <u>not</u> want to go with.
2. You are captain of a baseball team:
   a. Name three classmates you would like on your team.
   b. Name three classmates you do <u>not</u> want on your team.
3. You need some help on your school work:
   a. Name three classmates you would go to for help.
   b. Name three classmates you would <u>not</u> go to for help.
4. You are going to eat lunch:
   a. Name three classmates you would like to sit with.
   b. Name three classmates you would <u>not</u> like to sit with.
5. You are having a math contest:
   a. Name three classmates you would like to have on your team.
   b. Name three classmates you do <u>not</u> want on your team.

These five situations were used with students in grades three through eight. First and second grade students took a shorter version of the test, which consisted of three of the items (Field trip, School work, and Lunch).

Procedures

The tests were administered according to the following general schedule:

	Year 1 (1976-1977)		Year 2 (1978-1978)		Year 3 (1978-1979)	
	Pre	Post	Pre	Post	Pre	Post
Magnet Schools	Nov. 1976	May 1977	Nov. 1977	May 1978	Not Given**	June 1979
Control Schools*	Nov. 1976	May 1977	Not Given	Not Given	Not Given	Not Given

*Control Schools included Adams, Lafayette, Humboldt, and regular classes at Mullanphy

**Since data from Year 1 and Year 2 analyses indicated no evidence of significant pre- to post-test changes within school years, it was decided to eliminate pre-testing during Year 3.

All tests were administered in the classroom by teachers. In-service training for conducting the testing was provided by evaluation staff. That the in-service training provided met with success is indicated by the dramatic reduction in lost or unusable data from Year 1 to Year 2. During Year 1, usable (i.e., pre and post tests on matching classes) data were obtained from only four of the magnet schools - ABI #1 (Mallinckrodt), ALCE (Madison), PLAN (Ames), and ILC (Stix). During the second year, usable pre- and post-test data were obtained from all schools in which the test was given. The instrument was not administered to students at the second Academy of Basic Instruction (Ford and Field Branch Schools during Year 1 and Waring School during Years 2 and 3), because the very low proportion of white students there would not allow for reliable estimates of cross-racial choice patterns.

SCORING

Scoring of the instrument was accomplished locally, using a FORTRAN computer program developed by an ESAA evaluation staff member. The raw choice data from each class were entered into the computer, in the form of numeric codes to indicate the race (black or white) of the people who were chosen. These race choices were then aggregated separately for black and white students in the class, and adjusted according to the relative numbers of black and white students in the class. This procedure yielded two values for each scale, reflecting for each of the two racial groups the differences between the proportion of choices which were cross-racial (i.e., white students choosing black students, black stu-

dents choosing whites) and the proportion of students in the class who were of the specified race. That is, the cross-racial choice score for white students is the proportion of their choices which went to black students minus the proportion of black students in the class. Thus, if white students choose black students 60% of the time and 60% of the students in the class are black, then the cross-racial choice value is 0. If they choose blacks less than 60% of the time, the value becomes negative; if more than 60%, it becomes positive. Large deviations from zero scores on this measure provide evidence that race is a factor in the students' selections. Significantly, it is possible for either "over" - or "under-selection" to occur. The important thing is that, if a primary goal of the magnet program is to create situations in which students make decisions about how they feel about other people without regard to race, then it is the "chance" levels of both cross-racial acceptance and rejection (as represented by class values close to zero) which represent desirable outcomes.

RESULTS

Presentation of the sociometric data will be based on four major comparisons. These are: (1) Overall comparisons of magnet and control students for the first three years of the program; (2) comparisons among the magnet schools; (3) comparisons among the five different activities for which the students made choices; and (4) comparisons by grade level.

Comparisons of Magnet and Control Students

During the first (1976-77) year of the project, sociometric data were collected from four control schools in addition to the magnet schools. These were integrated non-magnet elementary schools within the St. Louis Public School system, including Adams, Humboldt, Lafayette, and Mullanphy (non-magnet classrooms) Schools. Because of the differences between the forms used for the primary (i.e., First and Second) and the intermediate and upper grades, the data will be reported separately.

Primary Grades

Results for the two primary grades are summarized in Table 1. The data indicate several things. First, on the positive nominations, both black and white, magnet and control students, tended to make cross-racial choices at less than chance rates (i.e., both black and white students <u>underselected</u> the other race), as indicted by the negative values reported in Table 1.

TABLE 1

CROSS-RACIAL CHOICE VALUES FOR PRIMARY GRADE CLASSES (PROPORTIONS)

	Positive Choices			Negative Choices		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
White students	-5	-7	-7	0	0	+1
Controls	-2	--	--	+1	--	--
Black students	-10	-14	-12	1	0	+3
Controls	-20	--	--	+4	--	--

Looking at the Magnet, Year 3 data and assuming that the average class that year was approximately 35% white, 65% black, white students at this level selected black students about 58% (65% minus 7%) of the time, and black students selected white students about 23% (35% minus 12%) of the time. Thus, the positive choices across racial lines were occurring at something less than what might be thought of as the "ideal" rate.

Comparisons of the magnet school data with data collected from students in the control schools indicate some contrast between black and white students. That is, white magnet students make relatively fewer cross-racial choices than white control students, but black magnet students make considerably more cross-racial choices than do their controls. Actually, these differences are probably more "real" for black students than for white students, since the magnet/control differences are much larger for black students than for whites. To the extent that these instruments reflect on the racial climate within the schools, it appears that the magnet school climate is slightly less positive for white students, but considerably more positive for black students.

On the Negative (or rejection) choices, both black and white students made cross-racial choices which were much closer to chance levels. The result that would be of concern in this area would be one of substantial over-selection across racial lines, i.e., negative cross-racial choices which were greater than the proportional representation of the group in the class. Such a result would indicate the existence of some negative currents or animosity in the social climate of the classroom. Keeping in mind that the numbers reported here are averages and that actual class values vary both above and below the average, it remains that the general level of cross-racial rejection is very near to where it should be. On the other hand, there is very little difference between magnet and control groups of either race, suggesting that the cross-racial rejection is not due to the magnet program itself, but is fairly characteristic of integrated elementary schools in St. Louis.

Upper Grades

Results for the upper grades (3-8) are generally consistent with those for the primary grade (Table 2). Positive nominations tend to occur at less than chance rates and negative nominations fall close to chance levels.

TABLE 2

CROSS-RACIAL CHOICE VALUES FOR INTERMEDIATE AND UPPER GRADE CLASSES (PROPORTIONS)

	Positive Choices			Negative Choices		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
White Students	-12	-14	-7	-3	-4	-3
Controls	-6	--	--	-6	--	--
Black students	-13	-17	-8	+1	+3	+2
Controls	-18	--	--	+1	--	--

n = 63 classes

There was some shift in the positive choices during Year 3 for both black and white students, indicating that both groups were more likely to make cross-racial positive choices than they had been during either of the first two years of the program.

The Year 3 data also indicate changes for magnet students in relation to their control groups. Previously, white magnet students had been below their controls in cross-racial acceptance; with the increase in the third year, they were making cross-racial choices at the same rate as white students in the control schools. Black magnet students, whose cross-racial choices were about the same level as those of black control students, were substantially more likely than the controls to make cross-racial positive choices at the end of Year 3.

The general interpretation seems to be that, although the close-to-chance levels of negative choices indicate a relative lack of animosity, the substantially lower levels of positive choices do not indicate what might be called an "ideal" level of affiliation. To be sure, this interpretation is based on averages and does tend to mask a large number of individual cases. The majority of students, both black and white, made substantial numbers of cross-racial choices. Moreover, the classes varied considerably, such that many did not differ significantly from chance levels of cross-racial choice. It remains, however, that students, on the average, made cross-racial choices at less than the level that would be expected on the basis of the proportionate representation of the two racial groups in their classrooms. The improvement in this area noted in the Year 3 data has to be encouraging. It does indicate some improvement with respect to positive relationships between races.

Comparisons Among Schools

Results of analyses comparing cross-racial choice patterns among schools are reported in Table 3. The Primary grades (First and Second) were excluded from this analysis because the instrument used at that level contained fewer items than the upper grade instrument and would not yield comparable total scores. The analysis was based on the most recent data (Spring, 1979).

The major conclusion of this analysis is that variation among schools was much greater on the negative scales than on the positive. Though there was some variation among schools on the positive scales for both black and white students, the overall differences among schools were not large enough

TABLE 3

CROSS-RACIAL CHOICES BY SCHOOL

(Grade 3-8 data)

		Positive Choices		Negative Choices	
	n	W	B	W	B
PLAN	6	-2.87	-9.37	-11.37	+6.87
ALCE	8	-6.25	-6.25	-1.50	+4.25
ABI 1	8	-2.37	-6.75	-3.50	-1.00
ILC	9	-6.56	-7.78	-0.89	-0.22
IGE	11	-9.27	-9.09	-3.55	+2.09
VPAC	16	-12.19	-9.31	+.50	-0.94
FLES	3	-6.33	-6.67	-5.33	+6.33
Total	63	-7.41	-8.22	-2.95	+1.68
F		1.83	.556	2.821	2.784
P		.1089	.7636	.0180	.0193

to be statistically significant for either group. The negative choices, however, did significantly differentiate among schools for both white and black students. Thus, while the schools did not differ substantially from each other with respect to positive cross-racial choices, they did differ in the extent to which students made negative cross-racial choices.

One thing that is important to remember in interpreting this negative choice data is that the "desirable" scores are those that are near to zero, representing cross-racial rejection which is in proportion to the representation of the group in question in the classroom. Thus, either "under"-rejection (negative values) or "over"-rejection (positive values) in these terms can represent undersirable levels of cross-racial choice.

It may not be readily apparent from inspection of the negative choice data in Table 3, but there is consistency in the extent to which the two racial groups deviate from chance levels of cross-racial choice. At PLAN, for example, white students had the greatest degree of under-selection within the magnet schools, and black students had the greatest degree of over-selection. Where there are differences between black and white students, there is a consistent tendency for white students to under-select and for black students to over-select across racial lines. If we ignored the (positive and negative) signs, these rejection values for white students would correspond closely with rejection values for black students across schools.

In terms of how the data may reflect on classroom social climate, the more favorable climates would be indicated by values which are close to zero for both racial groups, and relatively unfavorable climates by values which are above or below zero by a substantial amount. Interpreted this way, the data would indicate the most positive situations at ILC and VPAC, with ALCE, ABI #1, and IGE only slightly less favorable, and PLAN and FLES clearly less positive than the other magnet schools.

Comparisons Among Activities

The specific activities for which students were asked to make the sociometric nominations were described earlier. The reason for including the five different activities was to investigate the possibility that the type of activity might influence the extent of cross-racial choice. As in the previous analysis of school differences, this analysis included only the third through eighth grade data for the most recent testing period. Results are reported in Table 4.

TABLE 4

COMPARISONS OF CROSS-RACIAL CHOICE PATTERNS BY ACTIVITY

	Positive		Negative	
Activity	White	Black	White	Black
Field Trip	-10.41	-9.86	-3.31	+1.32
Lunch	-10.26	-9.98	-2.25	+1.70
School Work	-6.49	-0.93	-2.76	-.07
Math Contest	-6.08	-3.42	-2.71	+.01
Baseball	+1.22	-10.52	-5.07	+5.59

The clearest differences among activities occurred for the positive nominations. On the negative choices, there was very little difference in the extent of cross-racial rejection, with the exception of the Baseball activity. On that activity, white students rejected blacks at disproportionately low rates, and black students rejected whites at disproportionately high rates. On the other activities, there was still the same tendency for whites to under-select and blacks to over-select, but to a smaller extent than on the Baseball activity.

More importantly, the pattern of cross-racial choice patterns on the positive (acceptance) scales suggests some differentiation by activity type. Both the Field Trip and the Lunch items have very low levels of cross-racial choice. What these two activities have in common is a representation of a relatively unstructured, purely "social" interaction. The other three activities represent a more structured, task-oriented situation. With one exception (that of black students choosing classmates for a baseball team), the level of cross-racial acceptance was much closer to proportionate levels on these activities than it was for the two more socially oriented activities.

Interestingly, on the activity for which white students were most likely to choose black students (Baseball) and the activity for which black students were most likely to choose white students (School Work), both groups made cross-racial choices which were very near to "ideal" (chance) levels. It should be encouraging that there are at least some areas in which race does not appear to be a major factor in students' expression of preference. One implication though, based on the relatively lower cross-racial choice levels on the purely social (Field Trip and Lunch) items, is that there still exists some reluctance to associate across racial lines when the only purpose is the association itself. If the magnet schools are to promote truly positive relationships between races, then it seems that the existence of free association between white and black students when neither group has anything particularly substantive to gain from it would be a key indicator of progress toward that end.

Comparisons Among Grades

The final set of analyses of the sociometric data involved a comparison of cross-racial choices by grade level. The question of interest in this

analysis was whether or not patterns of choice changed with changes in ages (grade levels) of students making the choices. Data included in this analysis were the Spring, 1979 results for Grades 3-8. Results from the Wade IGE school were excluded because classes there have more than one grade level of students and thus could not give clear separation of choice values by grade. Results are reported in Table 5.

The data are reported separately by activity because there are clear differentiations by grade and activity. That is, while choices on the Baseball, School Work, and Math Contest appear not to be particularly related to students' age, choices on the Field Trip and Lunch activities do, such that, as students get older, they become less likely to make positive cross-racial choices. This is true for both black and white students. There is also an indication that black students become more likely to reject white students as they get older, but the corresponding trend does not occur with white students.

This result reflects directly on the previous discussion of differences by activity. That is, the tendency to avoid the purely social interaction which was noted before is smaller in the early grades than in the latter grades. This suggests that efforts to increase cross-racial acceptance in this area need to be concentrated on older, rather than younger, students.

SUMMARY AND CONCLUSIONS

The sociometric data reported here carry a number of implications for the magnet school program. Certainly the increase in cross-racial acceptance from year 2 to year 3, coupled with the higher degree of cross-racial acceptance for black magnet students than for black non-magnet students provides some encouraging indications of a relatively positive social climate in the magnet schools. Moreoever, some of the implications and concerns expressed here pertaining to levels of positive choice must be tempered by realization that there were, for both racial groups, substantial numbers of cross-racial choices, even though the absolute numbers might be less than a theoretical "ideal." The lack of disproportionate degrees of rejection across racial lines indicates a relatively low degree of animosity between groups.

On the other hand, the relatively low levels of cross-racial acceptance, especially in the purely social activities, does suggest a need for more

TABLE 5

RELATIONSHIPS OF GRADE TO CROSS-RACIAL SOCIOMETRIC CHOICES

Positive	FT		BB		SW		LU		MC		TOT	
	W	B	W	B	W	B	W	B	W	B	W	B
3	-3.75	-8.75	+8.50	-12.50	-3.25	-2.50	1.50	-5.50	+2.75	-5.50	+3.00	-7.00
4	-10.00	-8.71	-1.14	-9.43	-6.57	-2.71	-8.14	-10.57	-4.00	-4.43	-6.14	-7.14
5	-11.12	-9.62	+4.50	-12.38	-7.88	+.50	-10.75	-9.00	-8.00	-3.87	-6.62	-6.88
6	-8.00	-10.22	+3.33	-11.44	-10.22	+5.56	-10.89	-11.00	-8.11	+2.22	-6.78	-5.11
7	-13.55	-15.55	+2.45	-14.45	-10.91	+1.55	-15.73	-15.73	-15.09	-.55	-10.55	-9.09
8	-17.78	-17.00	+.33	-12.22	-5.89	-6.00	-15.89	-17.78	-6.22	-6.56	-9.11	-11.89

Negative	FT											
	W	B	W	B	W	B	W	B	W	B	W	B
3	-1.23	+2.25	-3.00	+3.50	-7.25	-1.50	-.50	+2.25	-2.50	-.25	-2.75	+.25
4	+3.43	+.57	-2.14	+3.57	+1.00	-5.57	-1.57	-2.57	-.43	-.14	+.29	-.86
5	-4.00	-2.50	-8.25	+9.25	-3.50	-.12	-.75	+1.25	-2.00	+2.00	-3.75	+2.00
6	+1.22	-.44	+.33	+6.33	-.33	-2.78	+5.44	-1.00	+2.44	-4.11	+1.67	-.56
7	-5.45	+.73	-9.09	+5.36	-1.91	-1.00	-1.91	+2.55	-2.82	-3.55	-4.36	+.82
8	-5.89	+7.00	-7.56	+6.67	-4.00	+2.78	-2.67	+5.67	-1.89	+2.89	-4.44	+5.17

attention to some of the interpersonal aspects of relationships between races. At this point in the development of the magnet schools, it would be a worthwhile endeavor to isolate factors associated with classrooms in which cross-racial acceptance is high and attempt to replicate them in classrooms in which need for improvement is indicated.